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ORIGINAL COMMUNICATIONS.

ART. I. *Whether Works of Art may, with Propriety, be combined with the Sublimity of Nature; and what would be the most appropriate Situation for the proposed Monument to the Memory of Sir Walter Scott, in Edinburgh?* By KATA PHUSIN.

THE question which has been brought before the readers of the *Architectural Magazine* by W. is one of peculiar and excessive interest; one in which no individual has any right to advance an opinion, properly so called, the mere result of his own private habits of feeling; but which should be subjected, as far as possible, to a fixed and undoubted criterion, deduced from demonstrable principles and indisputable laws. Therefore, as we have been referred to, we shall endeavour, in as short a space as possible, to bring to bear upon the question those principles whose truth is either distinctly demonstrable, or generally allowed.

The question resolves into two branches. First, whether works of art, may with propriety, be combined with the sublimity of nature. This is a point which is discussable by every one. And, secondly, what will be the most appropriate locality for the monument to Scott at Edinburgh. And this we think may be assumed to be a question interesting to, and discussable by, one third of the educated population of Great Britain: as that proportion is, in all probability, acquainted with the ups and downs of "Auld Reekie."

For the first branch of the question, we have to confess ourselves altogether unable to conjecture what the editor of the *Courant* means by the phrase "works of art," in the paragraph at page 500. Its full signification embraces all the larger creations of the architect, but it cannot be meant to convey such a meaning here, or the proposition is purer nonsense than we ever encountered in print. Yet, in the very next sentence, our editor calls Nelson's Pillar a work of art, which is certainly a very original idea of his; one which might give rise to curious conjectures relative to the acceptation of the word "art" in Scotland, which here would seem to be a condensed expression for "l'art de se faire ridicule." However, as far as we can judge from the general force of the paragraph, he seems to mean only those works

of art which are intended to convey a certain lesson, or impression, to the mind, which impression can only be consequent upon the full examination of their details, and which is therefore always wanting when they are contemplated from a distance; so that they become meaningless in a piece of general effect.* All monuments come under this class of works of art, and to them alone, as being in the present case the chief objects of investigation, our remarks shall be confined.

Monuments are referable to two distinct classes: those which are intended to recall the memory of life, properly called monuments; and those which are intended to induce veneration of death, properly called shrines or sepulchres. To the first we intrust the glory, to the second the ashes, of the dead. The monument and the shrine are sometimes combined, but almost invariably, with bad effect; for the very simple reason, that the honour of the monument rejoices; the honour of the sepulchre mourns. When the two feelings come together, they neutralise each other, and, therefore, should neither be expressed. Their unity, however, is, when thus unexpressed, exquisitely beautiful. In the floor of the church of St. Jean and Paul at Venice, there is a flat square slab of marble, on which is the word "Titianus." This is at once the monument and the shrine; and the pilgrims of all nations who pass by feel that both are efficient, when their hearts burn within them as they turn to avoid treading on the stone.

But, whenever art is introduced in either the shrine or the monument, they should be left separate. For, again, the place of his repose is often selected by the individual himself, or by those who loved him, under the influence of feelings altogether unconnected with the rushing glory of his past existence. The grave must always have a home feeling about its peace; it should have little connexion with the various turbulence which has passed by for ever; it should be the dwelling-place and the bourne of the affections, rather than of the intellect, of the living; for the thought and the reason cannot cling to the dust, though the weak presence of involuntary passion fold its wings for ever where its object went down into darkness. That presence is always to a certain degree meaningless; that is, it is a mere clinging of the human soul to the wrecks of its delight, without any definite indication of purpose or reflection: or, if the lingering near the ashes be an act ennobled by the higher thoughts of religion, those thoughts are common to all mourners. Claimed by all the dead, they need not be expressed, for they are not exclusively our own; and, therefore, we find that these affections most commonly

* For instance, the obelisk on the top of Whitaw, mentioned at p. 502., is seen all the way to Carlisle; and, as nobody but the initiated can be aware of its signification, it looks like an insane lamp post in search of the picturesque.

manifest themselves merely by lavishing decoration upon the piece of architecture; which protects the grave from profanation and the sepulchre assumes a general form of beauty, in whose rich decoration we perceive veneration for the dead, but nothing more, no variety of expression or feeling. Priest and layman lie with their lifted hands in semblance of the same repose; and the gorgeous canopies above, while they address the universal feelings, tell no tale to the intellect. But the case is different with the monument; there we are addressing the intellectual powers, the memory and imagination; every thing should have a peculiar forcible meaning, and architecture alone is thoroughly insipid, even in combination often absurd. The situation of the memorial has now become part and parcel of its expressive power, and we can no longer allow it to be determined by the affections: it must be judged of by a higher and more certain criterion. That criterion we shall endeavour to arrive at, observing, *en passant*, that the proceeding of the committee, in requiring architects to furnish them with a design without knowing the situation, is about as reasonable as requiring them to determine two unknown quantities from one equation. If they want the "ready made" style, they had better go to the first stonemason's, and select a superfine marble slab, with "Affliction sore long time he bore, Physicians was in vain," &c., ready cut thereon. We could hardly have imagined that any body of men could have possessed so extraordinarily minute a sum total of sense.

But to the point. The effect of all works of art is twofold; on the mind and on the eye. First, we have to determine how the situation is to be chosen, with relation to the effect on the mind. The respect which we entertain for any individual depends in a greater degree upon our sympathy with the pervading energy of his character, than upon our admiration of the mode in which that energy manifests itself. That is, the fixed degree of intellectual power being granted, the degree of respect which we pay to its particular manifestation depends upon our sympathy with the cause which directed that manifestation. Thus, every one will grant that it is a noble thing to win successive battles; yet no one ever admired Napoleon, who was not ambitious. So, again, the more we love our country, the more we admire Leonidas. This, which is our natural and involuntary mode of estimating excellence, is partly just and partly unjust. It is just, because we look to the motive rather than to the action; it is unjust, because we admire only those motives from which we feel that we ourselves act, or desire to act: yet, just or unjust, it is the mode which we always employ; and, therefore, when we wish to excite admiration of any given character, it is not enough to point to his actions or his writings, we must indicate as far as

possible the nature of the ruling spirit which induced the deed, or pervaded the meditation. Now, this can never be done directly; neither inscription nor allegory is sufficient to inform the feelings of that which would most affect them; the latter, indeed, is a dangerous and doubtful expedient in all cases: but it can frequently be done indirectly, by pointing to the great first cause, to the nursing mother, so to speak, of the ruling spirit whose presence we would indicate; and by directing the attention of the spectator to those objects which were its guides and modifiers, which became to it the objects of one or both of the universal and only moving influences of life, hope or love; which excited and fostered within it that feeling which is the essence and glory of all noble minds, indefinable except in the words of one who felt it above many.

> " The desire of the moth for the star,
> Of the night for the morrow;
> The devotion to something afar
> From the sphere of our sorrow."

Now, it is almost always in the power of the monument to indicate this first cause by its situation; for that cause must have been something in human, or in inanimate, nature.* We can therefore always select a spot where that part of human or inanimate nature is most peculiarly manifested, and we should always do this in preference to selecting any scenes of celebrated passages in the individual's life; for those scenes are in themselves the best monuments, and are injured by every addition. Let us observe a few examples. The monument to the Swiss who fell at Paris, defending the king, in 1790, is *not* in the halls of the Tuileries, which they fortified with their bodies; but it is in the very heart of the land in which their faithfulness was taught and cherished, and whose children they best approved themselves in death: it is cut out in their native crags, in the midst of their beloved mountains; the pure streams whose echo sounded in their ears for ever flow and slumber beside and beneath it; the glance of the purple glaciers, the light of the moving lakes, the folds of the crimson clouds, encompass, with the glory which was the nurse of their young spirits, and which gleamed in the darkness of their dying eyes, the shadowy and silent monument which is at once the emblem of their fidelity and the memorial of what it cost them.

Again, the chief monument to Napoleon is *not* on the crest of the Pennine Alps, nor by the tower of San Juliano, nor on the heights above which the sun rose on Austerlitz; for in all these

* If in divine nature, it is not a distinctive cause; it occasioned not the peculiarity of the individual's character, but an approximation to that general character whose attainment is perfection.

places it must have been *alone:* but it is in the centre of the city of his dominion; in the midst of *men*, in the motion of multitudes, wherein the various and turbulent motives which guided his life are still working and moving and struggling through the mass of humanity; he stands central to the restless kingdom and capital, looking down upon the nucleus of feeling and energy, upon the focus of all light, within the vast dependent dominion.

So, again, the tomb of Shelley, which, as I think, is his only *material* monument, is in the "slope of green access" whose inhabitants "have pitched in heaven's smile their camp of death," and which is in the very centre of the natural light and loveliness which were his inspiration and his life; and he who stands beside the grey pyramid in the midst of the grave, the city, and the the wilderness, looking abroad upon the unimaginable immeasurable glory of the heaven and the earth, can alone understand or appreciate the power and the beauty of that mind which here dwelt and hence departed. We have not space to show how the same principle is developed in the noble shrines of the Scaligers at Verona; in the colossal statue of San Carlo Borromeo, above the Lago Maggiore; and in the lonely tomb beside the mountain church of Arquà*: but we think enough has been said to show what we mean. Now, from this principle we deduce the grand primary rule: whenever the conduct or the writings of any individual have been directed or inspired by feelings regarding man, let his monument be among men; whenever they have been directed or inspired by nature, let nature be intrusted with the monument.

Again, all monuments to individuals are, to a certain extent, triumphant; therefore, they must not be placed where nature has no elevation of character, except in a few rare cases. For instance, a monument to Isaac Walton would be best placed in a low green meadow, within sight of some secluded and humble village; but, in general, elevation of character is required. Hence it appears, that, as far as the feeling of the thing is concerned, works of art should be often combined with the bold and beautiful scenery of nature. Where, for instance, we would ask of the editor of the *Courant*, would he place a monument to Virgil or to Salvator Rosa. We think his answer would be very

* We wish we could remember some instance of equal fitness in Britain, but we shrink from the task of investigation: for there rise up before our imagination a monotonous multitude of immortal gentlemen, in nightshirts and bare feet, looking violently ferocious; with corresponding young ladies, looking as if they did not exactly know what to do with themselves, occupied in pushing laurel crowns as far down as they will go on the pericrania of the aforesaid gentlemen in nightshirts; and other young ladies expressing their perfect satisfaction at the whole proceeding by blowing penny trumpets in the rear.

inconsistent with his general proposition. There are, indeed, a few circumstances, by which argument on the other side might be supported. For instance, in contemplating any memorial, we are apt to feel as if it were weak and inefficient, unless we have a sense of its publicity; but this want is amply counterbalanced by a corresponding advantage: the public monument is perpetually desecrated by the familiarity of unfeeling spectators, and palls gradually upon the minds even of those who revere it, becoming less impressive with the repetition of its appeals; the secluded monument is unprofaned by careless contemplation, is sought out by those for whom alone it was erected, and found where the mind is best prepared to listen to its language.

So much for the effect of monuments on the mind. We have next to determine their effect on the eye, which the editor is chiefly thinking of when he speaks of the "finish of art." He is right so far, that graceful art will not unite with ungraceful nature, nor finished art with unfinished nature, if such a thing exists; but, if the character of the art be well suited to that of the given scene, the highest richness and finish that man can bestow will harmonise most beautifully with the yet more abundant richness, the yet more exquisite finish, which nature can present. It is to be observed, however, that, in such combination, the art is not to be a perfect whole; it is to be assisted by, as it is associated with, concomitant circumstances: for, in all cases of effect, that which does not increase destroys, and that which is not useful is intrusive. Now, all allegory must be perfect in itself, or it is absurd; therefore, allegory cannot be combined with nature. This is one important and imperative rule.* Again, Nature is never mechanical in her arrangements; she never allows two members of a composition exactly to correspond: accordingly, in every piece of art which is to combine, without gradations, with landscape, (as must always be the case in monuments,) we must not allow a multitude of similar members; the design must be a dignified and simple whole. These two rules being observed, there is hardly any limit to the variety and beauty of effect which may be attained by the fit combination of art and nature. For instance, we have spoken already of the monument to the Swiss, as it affects the mind; we may again adduce it, as a fine address to the eye. A tall crag of grey limestone rises in a hollow, behind the town of Lucerne; it is surrounded with thick foliage of various and beautiful colour; a small stream

* It is to be observed, however, that, if the surrounding features could be made a part of the allegory, their combination might be proper; but this is impossible, if the allegorical images be false imaginations, for we cannot make truth a part of fiction: but, where the allegorical images are representations of truth, bearing a hidden signification, it is sometimes possible to make nature a part of the allegory, and then we have good effect, as in the case of the Lucerne Lion above mentioned.

falls gleaming through one of its fissures, and finds its way into a deep, clear, and quiet pool at its base, an everlasting mirror of the bit of bright sky above, that lightens between the dark spires of the uppermost pines. There is a deep and shadowy hollow at the base of the cliff, increased by the chisel of the sculptor; and in the darkness of its shade, cut in the living rock, lies a dying lion, with its foot on a shield bearing the fleur-de-lis, and a broken lance in its side. Now, let us imagine the same figure, placed as the editor of the *Courant* would place it, in the marketplace of the town, on a square pedestal just allowing room for its tail. Query, have we not lost a little of the expression? We could multiply instances of the same kind without number. The fountains of Italy, for instance, often break out among foliage and rock, in the most exquisite combinations, bearing upon their fonts lovely vestiges of ancient sculpture; and the rich road-side crosses and shrines of Germany have also noble effect: but, we think, enough has been said, to show that the utmost finish of art is not inappropriate among the nobler scenes of nature, especially where pensiveness is mixed with the pride of the monument, its beauty is altogether lost by its being placed in the noise and tumult of a city.

But it must be allowed, that, however beautiful the combination may be, when well managed, it requires far more taste and skill on the part of the designer, than the mere association of architecture, and therefore, from the want of such taste and skill, there is a far greater chance of our being offended by impropriety in the detached monument, than in that which is surrounded by architectural forms. And it is also to be observed, that monuments which are to form part of the sublimity as well as the beauty of a landscape, and to unite in general and large effects, require a strength of expression, a nobility of outline, and a simplicity of design, which very few architects or sculptors are capable of giving; and that, therefore, in such situations they are nine times out of ten injurious, not because there is anything necessarily improper in their position, but because there is much incongruity with the particular design.

So much for general principles. Now for the particular case. Edinburgh, at the first glance, appears to be a city presenting an infinite variety of aspect and association, and embarrassing rather by rivalry, than by paucity of advantage: but, on closer consideration, every spot of the city and its environs appears to be affected by some degrading influence, which neutralises every effect of actual or historical interest, and renders the investigation of the proper site for the monument in question about as difficult a problem as could well be proposed. Edinburgh is almost the only city we remember, which presents not a single point in which there is not something striking and even sublime; it is

also the only city which presents not a single point in which there is not something degrading and disgusting. Throughout its whole extent, wherever there is life there is filth, wherever there is cleanliness there is desolation. The new town is handsome from its command of the sea; but it is as stupid as Pompeii without its reminiscences. The old town is delicious in life and architecture and association, but it is one great open common sewer. The rocks of the castle are noble in themselves, but they guide the eye to barracks at the top and cauliflowers at the bottom; the Calton, though commanding a glorious group of city, mountain, and ocean, is suspended over the very jaws of perpetually active chimneys; and even Arthur's seat, though fine in form, and clean, which is saying a good deal, is a mere heap of black cinders, Vesuvius without its vigour or its vines. Nevertheless, as the monument *is* to be at Edinburgh, we must do the best we can. The first question is, Are we to have it in the city or the country? and, to decide this, we must determine which was Scott's ruling spirit, the love of nature or of man.

His descriptive pieces are universally allowed to be lively and characteristic, but not first rate; they have been far excelled by many writers, for the simple reason, that Scott, while he brings his landscape clearly before his reader's eyes, puts no soul into it, when he has done so; while other poets give a meaning and a humanity to every part of nature, which is to its loveliness what the breathing spirit is to the human countenance. We have not space for quotations, but any one may understand our meaning, who will compare Scott's description of the Dell of the Greta, in *Rokeby*, with the speech of Beatrice, beginning "But I remember, two miles on this side of the fort," in Act iii. Scene 1. of the *Cenci;* or who will take the trouble to compare carefully any piece he chooses of Scott's proudest description, with bits relating to similar scenery in Coleridge, or Shelley, or Byron (though the latter is not so first rate in description as in passion). Now, in his descriptions of some kinds of human nature, Scott has never been surpassed, and therefore it might at first appear that his influence of inspiration was in man. Not so; for, when such is the case, nationality has little power over the author, and he can usurp as he chooses the feelings of the inhabitants of every point of earth. Observe, for instance, how Shakspeare becomes a Venetian, or a Roman, or a Greek, or an Egyptian, and with equal facility. Not so Scott; his peculiar spirit was that of his native land; therefore, it related not to the whole essence of man, but to that part of his essence dependent on locality, and therefore, on nature.* The inspiration of Scott, therefore, was

* Observe, the ruling spirit may arise out of nature, and yet not limit the conception to a national character; but it never so limits the conception, unless it has risen out of nature.

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derived from nature, and fed by mankind. Accordingly, his monument must be amidst natural scenery, yet within sight of the works and life of men.

This point being settled saves us a great deal of trouble, for we *must* go out towards Arthur's Seat, to get anything of country near Edinburgh, and thus our speculations are considerably limited at once. The site recommended by W. naturally occurs as conspicuous, but it has many disadvantages. In the first place, it is vain to hope that any new erection could exist, without utterly destroying the effect of the ruins. These are only beautiful from their situation, but that situation is particularly good. Seen from the west in particular (*fig.* 279.), the composition is extraordinarily scientific; the group beginning with the concave sweep on the right, rising up the broken crags which form the the summit, and give character to the mass; then the tower, which, had it been on the highest point, would have occasioned rigidity and formality, projecting from the flank of the mound, and yet keeping its rank as a primary object, by rising higher than the summit itself; finally, the bold, broad, and broken curve, sloping down to the basalt crags that support the whole, and forming the large branch of the great ogee curve (*fig.* 280.), from *a* to *b*. Now, we defy the best architect in the world, to add anything to this bit of composition, and not to spoil it.

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Again, W. says, first, that the monument "could be placed so as to appear quite distinct and unconnected" with the ruins; and, a few lines below, he says, that its effect will be "taken in con-

nexion with the ruins." Now, though Charles Lamb says that second thoughts are *not* best, with W. they very certainly are; the effect would, without doubt, be taken in very close connexion with the ruins, rather too close, indeed, for the comfort of either monument: both would be utterly spoiled. Nothing in the way of elevated architecture will harmonise with ruin, but ruin: evidence of present humble life, a cottage or pigsty, for instance, built up against the old wall, is often excellent by way of contrast, but the addition or association of high architecture is total destruction.

But suppose we were to throw the old chapel down, would the site be fit for Scott. Not by any means. It is conspicuous certainly, but only conspicuous to the London road, and the Leith glass-houses. It is visible certainly from the Calton and the Castle: but, from the first, barely distinguishable from the huge, black, overwhelming cliff behind; and, from the second, the glimpse of it is slight and unimportant, for it merely peeps out from behind the rise to Salisbury Crags, and the bold mound on which it stands is altogether concealed; while, from St. Leonard's and the south approaches, it is quite invisible. Then for the site itself, it is a piece of perfect desolation; a lonely crag of broken basalt, covered with black debris, which have fallen from time to time from the cliffs above, and lie in massive and weedy confusion along the flanks and brow of the hill, presenting to the near spectator the porous hollows, and scoriaceous lichenless surface, which he scarcely dares to tread on, lest he should find it yet scorching from its creative fires. This is, indeed, a scene well adapted for the grey and shattered ruins, but altogether unfit for the pale colours and proportioned form of any modern monument.

Lastly, supposing that even the actual site were well chosen, the huge and shapeless cliff immediately above would crush almost any mass of good proportion. The ruins themselves provoke no comparison, for they do not pretend to size, but any colossal figure or column, or any fully proportioned architectural form, would be either crushed by the cliff, or would be totally out of proportion with the mound on which it would stand.

These considerations are sufficient to show that the site of St. Anthony's Chapel is not a good one; but W. may prove, on the other hand, that it is difficult to find a better. Were there any such lonely dingle scenery here as that of Hawthornden, or any running water of any kind near, something might be done; but the sculptor must be bold indeed, who dares to deal with bare turf and black basalt. The only idea which strikes us as in the least degree tolerable is this; where the range of Salisbury Crags gets low and broken, towards the north, at about the point of equal elevation with St. Anthony's Chapel, let a bold and solid

mass of mason-work be built out from the cliff, in *grey* stone, broken like natural rock, rising some four or five feet above the brow of the crag, and sloping down, not too steeply, into the bank below. This must be built fairly *into* the cliff to allow for disintegration. At the foot of this, let a group of figures, not more than five in number, be carved in the solid rock, in the dress of Border shepherds, with the plaid and bonnet (a good costume for the sculptor), in easy attitudes; sleeping perhaps, reclining at any rate. On the brow of this pedestal, let a colossal figure of Scott be placed, with the arms folded, looking towards the castle.

The first advantage of this disposition will be, that the position of the figure will be natural; for if the fancy endow it with life, it will seem to stand on the brow of the cliff itself, looking upon the city, while the superior elevation of the pedestal will never theless keep it distinctly a statue.

The second advantage is, that it will be, crushed by no supereminent mass, and will not be among broken ruins of fallen rocks, but upon the brow of a solid range of hill.

The greatest advantage will be the position of the figure with relation to the scenes of Scott's works. Holyrood will be on its right; St. Leonard's at its feet; the Canongate, and the site of the Heart of Mid-Lothian, directly in front; the Castle above; and, beyond its towers, right in the apparent glance of the figure, will be the plain of Stirling and the distant peaks of the Highland Hills. The figure will not be distinctly visible from the London road, but it will be in full view from any part of the city; and there will be very few of Scott's works, from some one of the localities of which the spectator may not, with a sufficiently good glass, discern this monument.

But the disadvantages of the design are also manifold. First, the statue, if in marble, will be a harsh interruption to the colour of the cliffs; and, if in grey stone, must be of coarse workmanship. Secondly, whatever it is worked in, must be totally exposed and the abominable Scotch climate will amuse itself by drawing black streaks down each side of the nose. One cannot speculate here as in Italy, where a marble Cupid might face wind and weather for years, without damage accruing to one dimple; the Edinburgh climate would undermine the constitution of a colossus. Again, the pedestal must necessarily be very high; even at the low part of the cliffs, it would be, we suppose, 40 or 50 feet: then the statue must be in proportion, say 10 or 12 feet high. Now, statues of this size are almost always awkward; and people are apt to joke upon them, to speculate upon the probable effect of a blow from their fists, or a shake of their hand, &c., and a monument should never induce feelings of this kind. In the

case of the statue of San Carlo Borromeo, which is 72 ft. high without the pedestal, people forget to whom it was erected, in the joke of getting into its skull, and looking out at its eye.

Lastly, in all monuments of this kind, there is generally some slight appearance of affectation; of an effort at theatrical effect, which, if the sculptor has thrown dignity enough into the figure to reach the effect aimed at, is not offensive; but, if he fails, as he often will, becomes ridiculous to some minds, and painful to others. None of this forced sentiment would be apparent in a monument placed in a city; but for what reason? Because a monument so placed has no effect on the feelings at all, and therefore cannot be offensive, because it cannot be sublime. When carriages, and dust-carts, and drays, and muffin-men, and postmen, and footmen, and little boys, and nursery-maids, and milk-maids, and all the other noisy living things of a city, are perpetually rumbling and rattling, and roaring and crying, about the monument, it is utterly impossible that it should produce *any* effect upon the mind, and therefore as impossible that it should offend as that it should delight. It then becomes a mere address to the eye, and we may criticise its proportions, and its workmanship, but we never can become filled with its feeling. In the isolated case, there is an immediate impression produced of some kind or other; but, as it will vary with every individual, it must in some cases offend, even if on the average it be agreeable. The choice to be made, therefore, is between offending a few, and affecting none; between simply abiding the careless arbitration of the intellect, and daring the finer judgment of the heart. Surely, the monument which Scotland erects in her capital, to her noblest child, should appeal, not to the mechanical and cold perceptions of the brain and eye, but to a prouder and purer criterion, the keen and quick emotions of the ethereal and enlightening spirit.

Oxford, October 20. 1838.

ART. II. *Architectural Metaphysics.* From the "British and Foreign Review."

BEING much struck with the following article, which forms a portion of a review of Mr. Hope's work in the *British and Foreign Review* for August last, we applied to the editor for permission to copy it into the *Architectural Magazine*, which, with the greatest kindness and liberality, he granted at once.

"IT is evident enough, that the worship of God is an inward act of the heart and mind, and that the humblest cotter, with worn-out bible and unwashed hands, may, in love and reverence, approach nearer the Divine Being, than all

the pomp of imagination in gay services, full of gold and steaming incense; that the deepest fervour has been felt in barns, or in catacombs; and that the widow's mite was worth more than the whole temple. But, though this is a truth, it is a one-sided truth, and must be taken with a limitation. Man is not merely a moral being, but also an intellectual one; and, if we are delighted to find evidence, sometimes, that he possesses, what some people choose to call a moral sense, we must recollect that he has at least five others, all of which are active, and cannot be kept idle. We never were of that great sect, that would cut us asunder, insect-like, into two parts, an ill-paired couple; separating the practical reason, by a fixed gulph, from a strange illusory understanding; and seeing nothing out of ourselves but base matter, to be used only for the conveniences of that machine which carries on its top the self-sufficient and somewhat pragmatical ball of man's head. But, to separate is easy, to harmonise, the slow task of laborious art; and we must endeavour to discover and bring to light, first in ourselves, the unity of one consistent personal being, and then, without us, that of the one creation of the one God.

For our senses do exist, and must exist, and, if not conciliated, they will rebel. Nor can we think that, for instance, during divine service in our churches, these same senses are either kept under, or drawn upwards, by being presented with blank white-washed walls, new bonnets, or, perchance, the effigy of a lion and unicorn, instead of the cross and suffering Saviour, and all the majestic imagery which our ancestors loved to behold! We can pray without them; who doubts it? as we can live without good furniture, or handsome rooms, or any of the ornaments of civilisation; with unplaned doors, like Spartans, or with no doors at all, like Epictetus. But, if we do not live so in private, but are driven, by a strong instinct of our nature, to make every little thing about us in our domestic life an image, and, as it were, a forget-me-not memorial of elegance and dignity, why should we leave these out in the noblest of our performances, and consecrate to God rusticity only? It is not found necessary for us, in order to love our wives and children, or to transact business, or to perform any other function of humanity, that we should go into a barn or hut. Nor, indeed, are the feelings ever so divisible from the imaginary power, that they can be affected directly by abstract truth; if it were so, then, to be consistent, we should strip our service, as well as our churches, of all ornament, and cut down florid sermons into mere assertions, and naked syllogisms. Perhaps, therefore, we are not so enlightened as we think ourselves, in reversing the order of things; according to which, in old times, private houses were small and rude, but public buildings of a size and grandeur proportionate to the full stature of the whole state.

"These thoughts naturally occur to one in reviewing the history of architecture; for we find that art, in so far as it can be entitled a fine art, to have been developed in all former times in the construction of temples and churches, while mere housebuilding was thought a branch as inferior to it as the portrait is to the historic painting. For a house must always be an affair of mere convenience and habitability; and what, in the higher style, a great authoress has termed, "cette grande inutilité" of all that excites the imaginative intellect, becomes, when applied to such structures, impertinent and absurd. But our practice works upon our theory, and we are not content now, unless we can draw down all the imposing and humiliating grandeur of the past to our own level. We find, accordingly, that the writers of the present day would reduce the art altogether to a mere mechanical one; a sort of box-making, only on a larger scale. Of all the arts, indeed, architecture is, by its own nature, that which appears the most unsettled in its principles, from the ambiguous position it holds between the lower and operative class of arts, and the fine ones. As to music, painting, and the rest, no one can help admitting, with however bad a grace, that they lie beyond the jurisdiction of the understanding, and that beauty, feeling, or something of the kind, is what regulates the genius that produces, and the critic that judges. But, when we come to

architecture, the utilitarians, accompanied by a formidable set of carpenters, bricklayers, and upholsterers, make claim to her as a runaway slave from their territory; stone, wood, convenience, and ingenuity, being, in their notion, the only postulates required for building. It is but fair to hear what can be said on their side of the question, especially when we find a man of such genius as Mr. Hope giving some kind of countenance to it.

"'In every country,' says this thoughtful author, 'we find the style of building determined by the nature of the soil, and the habits of the people consequent thereupon. In China, for instance, the taper conic form, which prevails in all edifices, and the slight and slender character, what is it but an imitation on wood, of the canvass dwellings of the original Monguls; while in Hindustan and Egypt, alluvial plains, subject to inundation, the early inhabitants obliged to keep to the highlands, and store their food in caves, made their buildings afterwards to suit their habits of life, gloomy, massy, cavernous. Thus, too, the Scythians, who roamed the Dodonæan forests, in the north of Greece, from their very way of life, and the materials within their reach, could construct no other habitation for themselves but the wooden hut, with upright posts, and transverse rafters, and sloping roof. In later ages, again, nothing but practical conveniences, afforded by the use of the arch, and the invention of glass for the enclosing of large spaces, and the want of such enclosures for religious processions in an inclement climate, and the necessity of a high-pitched roof, to throw off snow, determined the form and construction of the so-named Gothic.'

"Now, all this we willingly subscribe to, provided the other side of the question be not excluded. We admit these determining causes, but as material, not formal, causes. For, if this were all, if there were nothing more in the art than the adaptation of means to ends, the ingenuity of man in procuring gratification for his wants, and the gradual improvement of mechanical contrivance, the history of it might, perhaps, be interesting, but not more so than that of ship-building or iron-founding, and not particularly to the man of taste more than to any one else. But now, the fact is, that it does particularly interest that particular class; and this fact must be accounted for. What, then, is the general distinction between the two classes of arts? This, evidently, that the one requires nothing more than ingenuity, and is the product of only one particular faculty of man, the understanding, quite independent of his moral nature; whereas the other, and higher sort, calls into action the whole man, and its works are consequently stamped with the image of the collective fulness of his being; and, though still constructions of the ingenious animal, are presided over by moral ideas. The utility of a thing is its utility, and its beauty is its beauty; nor can we, by any juggling equation, get rid of either term, or make one stand for both. Now, a thing is useful only relatively, in relation to something else, taken together with which it makes a whole, in itself being only a part; though the very same thing, if considered by itself as one distinct thing, that is, a poetical whole, may be called beautiful; the beauty of it being its wholeness, unity, and independence. Nothing, however, is truly a whole, or essentially one and self-sufficient, but a being or person having life in itself; and all other things can have but a shadowy resemblance of this perfection. So that the beauty of all material objects must be merely symbolical, and can be in them only so far as they represent, in forms of time and space, those things which primarily and originally have their being in living souls; but which, in this, our earthly consciousness, cannot, perhaps, be seen intuitively in their essences, but are only known and deduced from their effects. We hold, then, that the beauty of a straight line, for instance, is its rectitude, that unswerving energy by which it maintains one constant direction; and the beauty of a circle, the union of infinite different tendencies in one harmonious whole, by one presiding determination; and so on, of all other shapes.

"These primary symbols we would call pure material beauty, and any others that may be found in the concrete forms of real things, relative or applied

beauty; making a distinction similar to that between the pure and the applied sciences. All beauty, then, is an outward expression of inward good; and either of that which is good for all soul as soul in itself, and exercising its two prime faculties of expansion and concentration, of grandeur and harmony, or else of what is good for the individual being in particular forms of life. Consequently, the highest beauty of individual things is exhibited, when the thing is such as to be susceptible of the most intimate combination with the most universal forms. According to such views, we would lay down this definition, that the art of so treating objects as to give them a moral significance, is *the fine art*. As in arithmetic, the fractional numbers must be reduced to relative unity with some one whole before they can be managed; so, we affirm, must the partial existences of the visible world be brought to a kind of common denomination with those of the inner world, before they can be available as expressions, to use another mathematical term, of beauty; and, be the thing *a*, *b*, or *c*, we believe that, by skilful treatment of its form, it may be brought to have such a meaning.

"To apply these more general considerations to architecture, we must begin with some real individual existence in the world, which expresses its own nature in its necessary form; and then observe how, in the course of time, the nature of the thing, acting, as it were, from within, and the visible form from without, work reciprocally upon each other till they reach an equilibrium in their highest possible developement. The structure of the Grecian temple was determined, in all its forms, by the nature of the materials used and the climate. Cylindrical smooth trunks, found in the sheltered interior of woods, were fixed in the ground at equal distances, tied together lengthwise by beams laid along their tops, and crosswise again by rafters laid over these from side to side; above which, a roof, not like that of the Orientals, flat, but sloping towards either side, and terminating in two triangular gables; and, along the inner side of the posts, a continuous wall of clay or wickerwork. The only beauty or formal expression of which such a structure was susceptible lay in the contrast of the vertical lines of the supporters with the horizontal supported, the round and the rectangular, both heightened, probably, by dark and light colours; and in the symmetry, that is, the simplicity and sameness, of the ratio between the different dimensions, both of the whole and of the separate parts. Afterwards, when the consecrated form came to be represented in the marble of Lower Greece, a new element was introduced, namely, the proportion between the strength of columns and the weight of superincumbent mass which they sustained; for, as the columns were set closer, and made shorter and stouter, and the weight of masonry placed on them greater, the character of firmness, constancy, and endurance, was increased, or, *vice versâ*, diminished.

"Such was the general form, varying, of course, according to the genius of particular races. That style which was most straightforward and simple, and true to the lineaments of its wooden type; in which the parts were not softened away, and blended together by gentle intermediaries, but large and strongly marked, and decisively separated; in which the mass supported was nearly equal to that of the supporters; became the established national form among the friends and descendants of Hercules. In this the few ornaments admitted were very fine and minute, and, like a delicate fringe, not seen at any distance, but so placed as to entertain the beholder when immediately under the building, when the eye could not take in the general outline, or the majesty of the bolder parts. Not so grave and serious, but more graceful and refined, the Ionians, on the delightful sea-coast of Asia Minor, did not feel inclined to separate so strictly the essentials and the accessories. Besides, in their settlements, the Acropolis, or citadel planted above the town, on a commanding height, was not so necessary a feature as in the armed aristocracies of the invading Dorians; so that the sterner characteristics of the Dorian type, intended to be seen from far, were softened down, and the small ornaments so magnified as to leave no great distinction between them and the

main forms of the structure. Strong geometrical precision was abandoned, and the fancy of the architect allowed to run out into playful appendages, such as the volutes, or ram's horns, and the swelling cushions, and the bases required to balance at the lower end of the column the effect of so large a projection in the capital; and all plain rectangular masses were broken up into a multiplicity of graceful mouldings. In short, if the Doric style had the expression of a great and grave man steadfastly employed in some weighty business, the Ionic may be imagined to represent the graces of a lovely woman, who refuses not to heighten by ornament the delicacy of her light figure. In after-times, when the two great races had lost much of their distinctness, and the smaller states had been broken down, and amalgamated into larger masses, a third order came into vogue, resulting from a combination of something of the strength and size of the first, with the luxuriant decorations of the second; and such was the Corinthian. Accordingly, it has neither majesty nor elegance, but richness; and was well suited to the age of Alexander and his successors; and afterwards, like the Asiatic style in oratory, acceptable to the Romans.

"Here we see consistency and propriety still further sacrificed to effect, while the curvilinear forms of vegetable growth, suggested, perhaps, at first, by the crowns of green leaves wreathed round the capitals on festive days, were fixed and petrified in hard stone; in all other parts, too, ornaments heaped upon ornaments, without any meaning, so as to produce an appearance of magnificence, delightful at first to the eye, but leaving no impression on the inward mind.

"These three orders, significant of three very distinct ideas which prevailed among the different races of the Greeks, were, however, afterwards used indifferently by all, according as propriety might require; just as in Pindar we find the three moods of Dorian, Lydian, and Æolian music adopted in different odes, or different parts of the same ode, as the subject might require dignity and sedateness, or easy elegance, or a rich and Bacchanalian fancy. Thus, as Mr. Hope observes, to Zeus, and Pallas the pure offspring of his intellect, the temples would be built of the Doric style:—

"'While in the fanes of the gayer Apollo, the Bacchus of later date, and more luxurious habits, displaying more affinity to the female character, they might, by preference, employ the Ionic equally ambiguous; and the shrines of Venus might be marked by the order invented in the city where that goddess had her most beauteous and most celebrated priestesses. But still the Greeks reserved to themselves the right of giving to each forms more restricted or multiplied, more simple or rich, and proportions more sturdy or delicate, according to the peculiar exigencies of the edifice or situation.'

"'So that, between each order and the two others, an almost insensible gradation exists; and the Doric of the temple of Neptune at Corinth, and that of Juno at Nemea, differ as much in their proportions as the statues of the Farnese Hercules, and the Belvidere Apollo.' (Page 40. 43.)

"To sum up the result of this hasty sketch, we observe that the general expression of Grecian architecture was that of the completeness of a whole fully developed into all its parts, and the perfection of each part, and its due subordination to the whole; *that*, in short, of a real organised being in the fulness of its existence, and the justest balance of its faculties, and either worthily undergoing some heavy trial, or, with temperate dignity, enjoying a serene life. And this was exactly the character of Grecian ethics, which rested mainly on the idea of justice and harmony, or proportion, and according to which the subordination of the inferior faculties in the individual, and of the inferior individuals in the state, constituted their ideal of moral and political excellence. Now, we cannot imagine that this coincidence between the forms of their masonry and their moral systems was caused by the want of glass, as some would tell us; or their ignorance of the arch, or the habit of living in the open air, and offering sacrifice before a statue. Such were, no doubt, the *sine qua non*, *that* without which it would never have come to pass, the material causes

of their style of building, the causes of its rudest beginning; but how, in the name of possibility, of its highest form and completest developement?

"We do not mean to say that Mr. Hope has adopted such a degrading theory as that which we endeavour to controvert; his genius, surely, could not stoop so low. But the fact is, that in this learned and elaborate book of his, the general tendency of his observations is towards the material side of the question; and the moral habits of either ancients or moderns are seldom mentioned or alluded to as having anything to do with the business. As a zealous and accurate observer of the phenomena of history, he deserves all praise; and his knotty and contorted sentences, full of dense matter, will form valuable knee-timbers for the construction of some more ample theory. We wish to give the reader a general outline of his essay, which includes the whole history of European architecture, and its offspring the Mahometan; and we will, therefore, proceed to extract his account of the Roman and Byzantine styles." (*British and Foreign Review*, August, 1838, p. 9.)

ART. III. *Critical View of the Architecture of New York.* By M. F., a late Member of the Profession in England.

NEW YORK is beautifully situated at the southern part of a tongue of land formed by the confluence of the Hudson or North River, and an arm of the sea called the East River, which separates it from Long Island. This tongue of land is, in point of fact, isolated by a small creek, crossed by two or three bridges, towards the north. The city, at present, does not cover a third part of the length of the island, which is about ten miles; though the remainder is occasionally built upon, and marked out into fifteen *avenues*, so called, running in straight lines from south to north, crossed at right angles by 156 *streets*, from east to west, at equal distances; the numerical order giving the names of the avenues and streets, commencing from the south and east. South of the extreme point of the town, the shores of Long Island, New Jersey, and Staten Island form one of the most noble, extensive, and picturesque harbours in the world. The old and populous part of the city is not so regularly planned; but may be easily comprehended by imagining an equilateral triangle, point downwards, nearly bisected by the principal street, Broadway, which extends 2¼ miles in a straight line. The southern end is terminated by the Battery Walk, a fine promenade, bordered by a stone pier against the sea, and divided into turf and wide paths, planted with weeping willows, elms, planes, white poplars, and other trees; exhibiting the most lively and picturesque view of the bay and shipping, and affording an immediate and quiet retreat from the noise and bustle of the neighbouring wharfs and streets. The wharfs are formed by building out numerous piers into the river, at right angles to the quay or street along which the warehouses are built; the vessels lying in the *slips*, as they are called, between the piers, and the piers serving for roadways to facilitate the unlading of the cargoes.

The general aspect of the city from the bay, and particularly from the heights of Brooklyn, on the opposite shore of the East River, is strikingly grand; regular and lofty lines of warehouses rising behind the crowded masts and their gay pendants, and numerous spires and turrets crowning the whole. As more wood than coal is burnt, and most of the coal is of the anthracite kind, the buildings are totally unsoiled by smoke, and, being mixed with trees, present a brilliance and variety of colour, much more resembling an Italian or Dutch, than an English, city. The prevailing colour arises from the red bricks; but, as the bricks are much smaller than ours, and freshly pointed, their unpleasant glare is considerably softened; many houses, also, are coloured white or yellow. The city is regularly, but not very evenly, paved throughout; the sandy soil probably does not form a substratum sufficiently firm. "The whole of the southern triangular part of the island," it is said in a *Geological Sketch*, "is a great and capacious basin, to the bottom of which the deepest wells do not reach, filled with alluvial sand of different natures, enveloping an immense variety of fragments of almost every kind of rock, primitive, transition, and secondary. All the rest of the island is essentially primitive, consisting of one formation, granite, which is, in some few places, covered or penetrated by schistose mica, hornblende, and white marble at the upper part of the island. This white marble forms the most valuable building-stone; and it is a matter of surprise, that it is only recently superseding the unsightly red sandstone, which has been most generally employed. The gneiss or slaty granite is now almost exclusively used for the foundations of buildings, and also in the construction of the Hospital, Almshouse, some churches, &c. The range of perpendicular trap rock on the Jersey shore constitutes another valuable and convenient resource for building materials."

The most prominent building in New York, both in point of size and beauty of design, is the City Hall. It is admirably situated in the widest part of a triangular area, planted with trees, called the Park, at the intersection of Broadway with another of the principal streets. It was commenced in 1803, and finished in 1812. The name of the architect is not mentioned in the *Picture of New York*, 1828; but I have not the least doubt, from internal evidence, that it was designed by an Italian. The style is florid Italian, but a chaste specimen of that style. The building forms a parallelogram on the plan, being two stories in height, besides a basement story. It has a projecting wing at each end, embracing three windows in width, and a slightly projecting centre with five windows, leaving four more on each side between the wings. There is a projecting and recessed Ionic portico in the centre of five intercolumniations, with coupled columns at the angles, ascended by twelve steps, and surmounted

by a balustrade, the base and cornice of which are continued round the front and two ends of the building. The wings have pilasters in the front, coupled at the angles, to correspond with the centre. The centre and front of the wings have an upper order of Corinthian pilasters on the second story, with a balustraded parapet above, except in the centre, which has a plain attic, crowned with a clock turret, square on the plan, with coupled composite columns, pedestals, entablature, and scrolls above, projecting octagon-wise from the four angles, and a small circular dome, and figure of Justice on the summit. The windows are circular-headed through the principal story, and also in the centre of the second story, bordered by piers, archivolts, and imposts attached to the pilasters; the remainder are square-headed, with panels over them. The front and both ends, above the basement story, and the cupola, are built of white marble from Stockbridge, Massachusetts; the remainder of reddish brown freestone; the roof is covered with copper. The entire length of the building is 216 ft., breadth 105 ft., and general height 51 ft.; and, altogether, it has a most decidedly imposing effect. In the interior arrangement of the plan, the portico and vestibule lead to an open corridor extending the whole width of the plan, on both stories. There are two staircases, one at each end, and a grand geometrical one in the centre, of a circular form, with a gallery over, surrounded by ten marble columns supporting a paneled dome and lantern, behind the turret before-mentioned, and out of sight on the principal elevation.

A new Exchange and Custom-house are in course of erection at the present time. They promise to be massive, and handsome Grecian edifices, but are not sufficiently forward to pronounce any criticism upon.

We now have to describe a building recently erected, which is not only an honour to the city and the American nation, but a perfectly unique specimen of its style, such as all Europe cannot produce. It is the Hall of Justice in Franklin Street, a model of an Egyptian temple; on such a grand scale, as to be in degree only inferior in effect to its magnificent prototypes at Dendyra and Thebes. The plan occupies what is called here an entire block of buildings; that is, it is isolated by streets on every side. The principal front consists of a four-columned portico, with appropriate entablature, well raised on steps, projecting the width of the return intercolumniation from the main wall of the front, which is only one story high, and lower than the centre, and has five very lofty windows, with proper architraves and cornices on each side. Behind the four external columns, are two columns between two antæ, or square pillars; and between these columns and antæ, a second flight of steps leads to an

open vestibule, containing two rows of four columns each, ranging behind the columns in antis previously mentioned, but, of course, on a higher level. The diameter of the external columns is about 5 ft., of the internal 4 ft., from which may be formed an idea of the proportionate height. The external columns are of three pieces of stone each, consisting of a palm-leaved capital, a plain shaft, and a zigzagged base. The internal columns have a plain base, reeded shaft, and lotus capital. The ceiling of the vestibule is formed by stone landings over the massive architraves. Characteristic doors on both sides, between the intercolumniations, lead to smaller police offices, &c.; the centre one forwards to the sessions court, which is square on the plan, with eight columns ranged circularly within, supporting a circular architrave, coved inwards; the ceiling rising in several square sinkings, circle within circle, to the centre. There are triple windows on three sides, and a gallery on the fourth. Various other offices, and a prison, are included within the entire plan; the external walls of which exhibit the same consistent character, picturesquely but uniformly broken into varied heights and widths. The entire building is of large blocks of grey granite, similar in colour to that of Waterloo Bridge, but of finer texture. The only faults I noticed were, a slight stiffness in the carving of the palm leaves, compared with my recollection of Denon's engravings; the too frequent introduction of the beautiful globe and eagle's wings; and the inappropriate and unmeaning rows of mummy-shaped figures over the doors of the vestibule. In other respects, it is equally well designed and executed.

The oldest episcopal establishment in New York is Trinity Church, in Broadway. The present edifice, however, is of no older date than 1788; the former one, on the same site, built in 1696, as well as many other churches, having been destroyed by fires, which are very frequent here. The dimensions are 104 ft. long, 72 ft. wide, and the spire 198 ft. high. The style is Gothic, so called; but, both in design and detail too contemptible for notice; it can only be compared to those card-paper toy-models of churches, covered with glass dust, which are sold about London streets. All the other Gothic designs here, except the last-erected one, the University, which, however, will not bear minute criticism, are in the carpenter's or Batty Langley style. The other old episcopal churches are handsomer, with porticoes of a Roman order, and steeples in the style of St. Giles's, or St. Martin's in the Fields, London. The interiors are divided by columns into nave and ailes, but are very inferior in design and execution. The best specimen is St. John's, in Hudson Square. The upper part of the steeples is generally built of wood, painted stone colour. And here it may

be proper to mention the extensive use of woodwork, which lasts so well in this dry climate. Besides all the purposes to which it is devoted with us, it is used for entire houses occasionally, for external steps and floors, porticoes, verandas, and balustrades; for the cornices of houses, which are hollowed out for the gutters without lead; and as shingles for roofing, when it will last sound without painting, never gathering the least mould or moss, and turning to a grey slate colour. Slates are occasionally used; but, I believe, all imported from Europe. I do not remember to have seen tiles at all.

This extensive use of woodwork seems to have made the joiners the principal designers, before the establishment of the architectural profession, which at present is sufficiently numerous; and the circumstance of the city's being a seaport, and the same workmen being employed as well in fitting up the cabins of ships, has given a decided *naval* character to the ornamental architecture of the city. The general style of the external doorcases (except the most recent Grecian designs) is exactly the same as that of the round houses, or covered parts of the upper decks of ships, consisting of petite columns, and minute mouldings; and similar details run through the finishings of the rooms.

"If to do good were as easy as to know how to do it, chapels had been churches, and poor men's cottages princes' palaces." The above ejaculation of Shakspeare has been singularly accomplished in this country, which has been justly called the "paradise of the labouring classes," and in which, from the equal footing of all religious persuasions, *chapels are churches*, both in name and importance. But, in New York, few but the Episcopal, the prevalent sect, have steeples. The Presbyterian, Methodist, Catholic, and other churches, are generally in the form of Grecian Doric or Ionic temples; the porticoes fairly executed in white marble, or red brick and stone. The interiors are often expensively fitted up, particularly the pulpits, which are generally made in the form of a French tribune; that is, a raised platform, with a desk in front, hung with rich crimson drapery, with an elegant candelabrum on each side, and a pilastered and draped kind of altar-piece against the wall behind. The pews are models of convenience and elegance, being uncramped for room, and having the backs sloped at an agreeable angle; the mahogany capping rounded off, so as to present no projection against the head, and intersecting with a scroll arm, which forms the end of the pew, with the door as low as the bottom of the scroll. If the steepled churches are immeasurably inferior to our London ones, those which we should call chapels are greatly superior in point of size of the porticoes, and expense of execution. In general, if an absence of good taste is often visible, particularly in the white glare of the interiors, we are seldom or never disgusted with that

niggardliness, which so often ties up the hand of genius in England, both in public and private edifices, vainly trying to unite two incompatible things, parsimoniousness and display.

The theatres have no architectural pretensions outside, and, as far as I have seen, very little in the interior.

The appearance of Broadway, the principal street, is more like that of a Parisian boulevard than any thing else. The frequent trees, the canvass awnings against the sun before almost every shop, supported by turned white posts at the edge of the footway, the gay colours of the houses, the display of the shops, strings of omnibuses, and vehicles of all descriptions, crowds of pedestrians and loungers at the hotel doors and bar-rooms, and, last not least, the unrivalled elegance of shape, walk, and costume of the fair inhabitants, form a scene of attraction that will bear comparison with any foreign city. The shop fronts are not equal to ours, either in design or expense of execution; though the interiors of many stores are handsomely fitted up. In some, a pretty ceiling is formed by white drapery, gathered into radiated panels, like the silk front of a pianoforte. The hotels, which, as well as the boarding-houses, are very numerous, have, in general, recessed porticoes, or open lobbies of some kind, but in other respects are not remarkable. Even the great Astor House, perhaps the largest hotel in existence, which accommodates 200 or 300 persons, though substantially built of grey granite, has no architectural feature, but a heavy recessed Doric porch and stone staircase: the remainder of the front being a mere flat wall, perforated by an infinity of small manufactory-sized windows. This bluish grey granite, which will bear tolerably minute carving, is generally used for the ground story piers and bressummers of all the recently built warehouses, and many of the stores or shops, and occasionally in the fronts of ornamental edifices, and has a good effect. Pillars and columns, of the height of two stories, are obtained in one piece.

The private houses, of first and second rate description, are more spacious, lofty, and expensively built, than our own of a similar kind. They are not dissimilar in plan; the two principal rooms, on the ground, or on the first floor, being thrown into one by folding doors, often by double doors, so as to allow of two large closets between the rooms. The finishings are well executed, and they have large marble chimney-pieces imported from Italy, generally with small detached columns supporting a frieze projecting over each. The frontispieces to the entrance doorways of the more modern houses are, many of them, of beautiful design; generally with three-quarter columns, showing a full front at the returns, with spacious landings, broad flight of steps, and plinths, forming a parapet in two heights, connected by a carved scroll. Others have marble balusters and

inclined rails, terminating in scrolls, and scrolled steps at bottom; or the rail is received into a circular pedestal, supporting a cast-iron candelabrum. The doors have tall Grecian panels, side lights, and windows, and are hung on pilasters. In the windows of dwelling-houses a very bad taste universally prevails of having stone lintels (instead of gauged arches), and a plain sill below, but without architraves to connect the design. To avoid poverty of appearance, the lintel is sometimes curved into a flat pediment moulding, which makes it worse; or divided in width into projecting and grooved square block panels, so as to give the most painful idea of insecurity, in the very place where security is most required. In the back fronts of houses, neat wooden-pillared verandas, open or enclosed by shutter-blinds, are prevalent, with stairs from the first floor to the level of the small garden, where vines and standard peach trees will flourish as well as in the country.

The North or Hudson River being upwards of a mile wide, and the East River half a mile wide, in the narrowest parts, communication with the opposite shores, to Jersey city, and to Brooklyn, or Long Island, is effected by most convenient steam ferryboats, that transport goods, passengers, vehicles, and horses, without being unharnessed, every quarter of an hour, from numerous points of the town. Brooklyn is a curious specimen of a town almost entirely built of wooden-boarded houses, in regular streets crossing at right angles, and planted with trees, whose gay verdure prettily contrasts with the white-painted fronts, porticoes, and wooden railings. A remnant of Dutch neatness, and peculiar taste, is very perceptible here. The general village architecture in the neighbourhood of New York is of a similar material, though brick and stone are often used as well. The better sort of detached country houses have generally a portico of four or six tall wooden columns, occasionally on two stories, with wooden floors and steps, left unpainted, supporting a lean-to shingled roof, or the main roof continued in the same or a less acute angle. Gables are invariably used instead of hipped roofs; and, in the largest specimens, the gable is often made a regular pediment, with a more solid portico underneath it. Wooden models of Grecian Doric temples are common in the village churches; and very pretty lodges for the toll-keepers at the steam-boat stations on the Hudson River are frequently met with, remarkably resembling the architectural forms in the Herculaneum paintings, built entirely of joiner's work.

In conclusion, the present writer has not yet had opportunities of comparing the architecture of New York with that of the other American capitals: but, viewed by itself, he considers it, on the whole, as far superior to his previous expectations, and probably to what most people would expect to find in a comparatively

still rising nation; while the recent evidences of improving taste and public spirit of the citizens offer the most certain promise, that, at some future day, New York will equal in splendour, as well as in prosperity, the proudest cities of the old world.

New York, September, 1838.

ART. IV. *A few Reflections upon Windows.* By HENRY NOEL HUMPHREYS.

WINDOWS form an important, perhaps the most important, feature in modern architecture. In the present state of society, buildings of a domestic character have assumed an importance which belonged to them at no former period; not so much from their individual splendour or extent, as from their great and still increasing number. I do not mean mere houses, but am rather speaking of such buildings as almost deserve the name of palaces; and which the wealth and importance of a middle class, the existence of which is the main feature in the modern social system, has multiplied to an incredible extent. To buildings of this class, the usual decorations of ancient temples, columns, porticoes, pediments enriched with vast groups of sculpture, &c., are totally inapplicable, for the simple reason, that they are *unnecessary*. To the buildings of which they formed a part, they were applicable, for the same simple reason reversed; namely, that national rites, customs, and climate rendered them *necessary;* they were consequently legitimate features upon which to lavish the taste and skill of the architect, which, in an age peculiarly favourable to monumental architecture, brought their proportions and decorations to a perfection which is the more wonderful the more the details and principles are critically examined.

That the extreme beauty of the remains of those masterpieces of architectural invention should, at a period when modern Europe was emerging from centuries of literary darkness, and beginning to appreciate the polish of the ancient world, in the relics of her literature and the ruins of her temples, have induced the architects of that period to attempt an imitation, in their churches and other public buildings, is not astonishing; even when we consider that those glorious results of an architecture upon other principles, the Gothic cathedrals, were before their eyes. But that this feeling should gradually sink into mere servile plagiarism, such as stealing detached features, or entire parts, and placing them upon buildings with which they could in no way combine; columns supporting nothing; a pediment inserted in a square flat front, with a flat roof above it, of which I could point out more than one example; is an abuse of the principles of imitation and adaptation which I cannot understand.

I have made these remarks, to prove, as it appears to me, that the principal features of ancient architecture are not applicable to modern domestic buildings; and that the wants which, in other ages and other climes, called them into their beautiful existence, are not among the wants of a modern European edifice of a domestic character, at all events in our climate.

Having come to the conclusion, that what were the main features in ancient architecture are not the legitimate subjects upon which to exert the taste and invention of the planner and designer of a modern mansion, the question becomes, What, then, are the legitimate means of enriching a building of such a character? Upon consideration, we shall see, at once, that the principal features *must* be the entrance doors and windows; and these are, consequently, the proper vehicles for ornament and decoration. And, as the front generally presents only one door, and many windows, we easily arrive at the conclusion that, in modern domestic architecture, as I advanced in my first sentence, windows form, or should form, an important, perhaps the most important, feature; and, like the expressive eyes of a beautiful woman, at once convey the sentiment and general character of the fair structure.

Some have asserted, and exhibited their conviction in practice, that a building, purely designed in any of the Greek or Roman orders of architecture, should, though highly enriched in every other part, be divested of even a single moulding round the windows. This, it will be seen at once, from my previous remarks, is totally at variance with the principle I have been advocating. The effect of this method is to give the appearance of a handsome building, once complete in itself without windows, in which, to gratify some afterthought of the proprietor, or to suit some change of destination in the building, a person, not an architect, has been employed to saw out the square apertures in question, and thus effect windows. Windows produced in this manner could never appear as though they had formed part of the original design; and anything which does not appear to form a part of the original conception, complete and entire, and in accordance in all its parts, must be a great fault in constructural design. Besides the reason contained in this argument, there is another, which, most likely, would have more weight with the maker of such a design; and that is, that those very authorities which, so scrupulously followed, have provided him with his columns, his cornice, his pediment, &c., have also provided proof that, where windows were introduced, which was but rarely in ancient public buildings, from the principle of their general structure, they were enriched with mouldings, in accordance with the order of the building. The authorities are scanty, it is true, but sufficient.

Another, and a much larger, section, I hope, agree that the decoration of such essential parts of a modern house as doors

and windows, ought to precede all others; and that the introduction of any more extraneous ornament, till these innate features, if I may use the term, are suitably decorated, is to proceed in the path of bad taste and false principle. It is rather designing without principle, without which there can be no true taste.

It is difficult to recommend a particular style, as that must be decided by the circumstances of situation and use; but many valuable ideas may be gleaned from a review of what the invention of architects has produced, beginning with the period of that Greek and Roman architecture which has so wonderfully influenced modern works after the lapse of so many centuries, when it might fairly be supposed that the ages of Gothic and Saracenic splendour had obliterated its very memory. The remains of windows in ancient Greek and Roman temples, or other public buildings, are so few, as I have said, and those few so well known to every classical architect, that they call for no description. Of the more rich Roman period, however, Woods has made a remark, of which Candidus has observed, in the *Architectural Magazine:* "It is rather tantalising on the part of Woods, that he has not given any sketch of what would, I dare say, have been quite a novelty to most of his readers, infinitely more so than the subjects of many of his cuts, and an exceedingly welcome one also, unless he has greatly overrated the thing in his account of it. Speaking of the Palazzo Mattei at Rome, he tells us that in the lower court are some valuable fragments of architectural ornaments, built up in the walls; and, in particular, two semicircular windows, where the rich foliage, which occupies a part of the opening, shows that the ancients knew how to produce an effect somewhat similar to that of the tracery in our Gothic windows, without at all departing from the character of their own architecture. So, then, it seems there is a genuine classical novelty in store, which no one, not even Woods himself, has yet served up to us upon paper." (See p. 221.) I had imagined that beautiful piece of sculpture published and well known; for I have no doubt that Woods refers to the one inserted in a wall of the cortile of the Mattei Palace at Rome, of which *fig.* 281. is a sketch taken upon the spot. It is perforated between the foliage, and appears to have filled the upper part of an arched doorway; at all events, such is the general impression of many French architects, with whom it has been rather a favourite study, for they have introduced it, or something very similar, in more than one instance, in the upper part of the great doorways, or *portes cochères*, of the great hotels of Paris. It forms a good example of the only manner in which an effect similar to Gothic tracery could be introduced in the windows of buildings in the Roman style. In the palaces of the emperors, it is probable that openings were frequently enriched in this manner; and, from the

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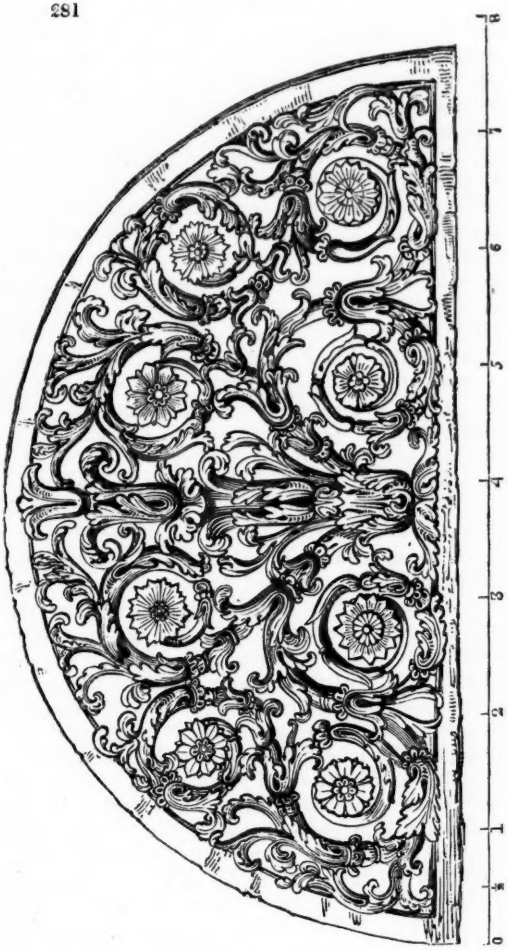

large scale, it is probable that this had its place on the Palatine Hill in the palace of the Cæsars.

Of the windows of the private dwellings of the Greeks and Romans we know little, except that it is quite certain they had windows, and that, after the age of Augustus, they were by no means uncommon. The paintings upon the walls of Pompeii, many of which, no doubt, belong to a much earlier period, also represent windows, although the general structure of the houses

shows that they were not in very general use. These paintings are too hasty and inaccurate to give any idea of the architectural style; nevertheless, I regret having lost the sketches I made. In the later period of the emperors, however, windows must have been common enough in Rome, if not from choice, from many urgent circumstances; one of which was, that the land became so valuable in the most frequented parts of the city, that it was usual to build story above story, as in modern houses, so that the possibility of lighting the lower apartments from the roof no longer existed; and this custom of building up the houses story above story, in the most valuable situations, was carried to such an excess, that, even so early as the reign of Augustus, an edict was passed to prevent the abuse of a practice by which the public safety became endangered. This edict is one of the proofs that Roman houses must have had windows: but this is a case where it may be said they were adopted from necessity. There are other proofs that windows, or apertures in the *sides* of apartments, were not an unusual mode of admitting light among the Romans after the age of Augustus. In Cicero's letters, we find him defending the smallness of the windows of his house on the Palatine Hill against the strictures of his critical friend Atticus. Pliny enumerates the number of windows in the apartments of all his villas. But hundreds of detached remarks might be cited to prove that windows, much like our modern windows, were in use in Roman dwellings. Tibullus, for instance, commemorates the fate of a woman who fell from a window into the street. It appears, also, that glass was eventually used by them in their windows, though always a luxury; for it may be presumed that the art of making glass in large flat plates was never thoroughly understood by them, though fragments have been discovered at Herculaneum. Pliny, however, had glass *windows* and *doors*, which he does not speak of as a rarity: he, however, mentions that, before his time, the lapis specularis was in general use; a sort of mica, which split easily into thin plates, and was brought principally from Spain. Lasteyrie, in his *History of Painting on Glass*, quotes a curious passage, which corroborates this statement of Pliny, respecting the lapis specularis. His extract is from the Jewish writer Philon, who was ambassador to Caracalla from the Jews of Alexandria. He describes the emperor receiving the embassy while busily engaged in superintending the building of a palace, where the writer saw workmen inserting blades of a transparent substance into windows. It is most likely, however, that, in that climate, neither the glass nor the mica were common to the windows of ordinary houses; for we know that, even in our own more northern country, shop windows were unglazed a century or two ago. Since, then, it is ascertained that the Romans had

windows, we may conjecture that, in the superior dwellings, the taste of their architects produced many beautiful designs in that feature of architecture, which are unfortunately lost.

At the crash of the Roman government, by the irruptions of barbarous tribes, incapable of appreciating the beautiful results of civilisation, architecture must have fallen into the lowest state. Shelter, rather than luxury or splendour, was all that was required; and the apertures for the admission of light, in buildings of that dark and barbarous period, were made as small as possible; as each house became a fortress, and even the cottage was built with a view to enable its inhabitant to repel any sudden attack.

The style of window, varying in size and rudeness with the character of the buildings, was much like the sketch shown in *fig.* 282., taken from a window in the remains of a small house near Ravenna, belonging to the earliest Lombardic period. In this style (which was a reminiscence of the Roman in barbarous hands, the features being preserved, but perverted in application,) arose, a little later, many works of noble extent, the first effect of the already growing wealth of the church; a fine monument of the style is the cathedral of Trent. But these architectural efforts were confined to religious buildings, and domestic architecture made little progress; for the window given above will give a faint idea of its details, if we allow for a gradual improvement in proportion, and the production occasionally of some rude carving, till the introduction of the pointed style, generally called Gothic, about the twelfth century. At that period, the arts in general began to revive, and the new architecture, with its pointed arches, (whether derived from the Saracens, who now possessed great part of the south of Europe, or originating in the manner ingeniously supposed by Möller, matters little,) began to assume a consistency and homogeneity of style, which at once showed that fixed principles were at length at work, and which, carried out, produced eventually that graceful and beautiful Gothic, which yields to no school of architecture in the science displayed in its construction, or in the elegance and invention displayed in its design. We have, in England, no specimens of windows of a purely domestic character in this style earlier than the Tudor period, and those examples are too well known to require attention; they have served as models of windows to all our modern Gothic houses. Neither do the windows previous to the pointed style, in this country, require

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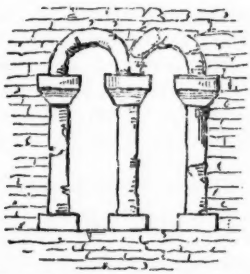
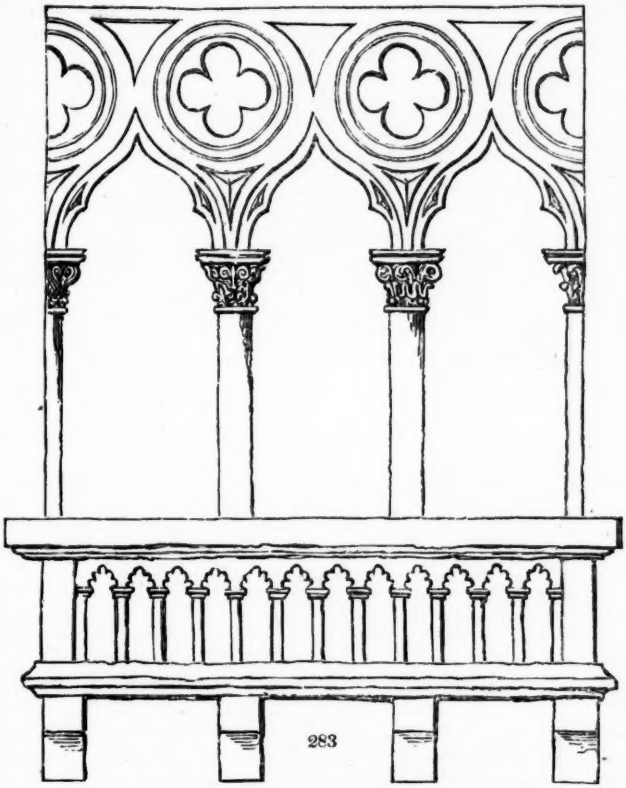


mention. In the castles, they partook of the Lombardic style, of which a specimen has been given; and these were the only residences where anything like architecture was attempted, except, of course, conventual buildings, with which we have nothing to do, as I wish to separate domestic architecture, as much as possible, from that of a religious character, for, in every perfect school of architecture, they have ever been distinct.

For windows, then, of dwellings, in the early period of the pointed style, we must look elsewhere; and Italy again affords us an example. The commerce of Venice raised within her the arts of civilisation, while the rest of Europe was yet immersed in barbaric chivalry, or more barbaric bigotry; her insular situation protected her from the wild aggressions of the fighting princes of Europe; and, while they were fortifying castles and destroying them, the merchant princes of Venice were building palaces, which time has still spared as monuments of her early greatness. Here we find buildings of a purely domestic character at this early period, where security enabled them to construct windows of fair and open dimensions; and I give, as an example, one from the Pisani Palace (*fig.* 283.), of which the simplicity and nobleness of design must at once strike every connoisseur in architecture.

The next style to be observed is the more florid Gothic, of which we have ourselves beautiful specimens; but then that Tudor Gothic to which I allude is peculiar to England: and there was another florid Gothic of France and Germany, which well merits the attention of the architect, more especially in that feature which has to do with the present essay, its windows. I am not able, at the present moment, to find a favourable example in my portfolio. In Italy, too, the florid Gothic presents beautiful examples in windows, quite peculiar in style and feeling, but of which I am equally at a loss for an example.

Having followed the Gothic to its most florid and last phase, we must retrograde a little, in order to mark the early steps of its fall. The first serious innovations took place in Italy about the middle of the fourteenth century, when the ruins of ancient Roman works began to attract the attention and study of the great artists of that age. The first result of this study produced combinations, often singular, but frequently full of grace and beauty; for the architects of that day copied, not as plagiarists, but as poets. As a singular, and at the same time beautiful, specimen of the earliest amalgamation of the styles, I give an example of a window from an old palace at Bologna. (See *fig.* 284.) Here we have the Gothic disposition of parts still perfect, but modified in form, and a new and totally distinct feeling instilled into the minute details; the arabesque character of which was doubtless inspired by the Roman style of painted interiors,



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many of which, with all their beautiful designs still fresh, existed in the time of Raphael.

Many beautiful conceptions were realised about this period; when, freed from the trammels of any fixed school, the fancy of the architect was alone his guide, but always governed by simple and pure principles, and inspired by noble examples. Indeed, a voluminous work might be filled with beautiful examples of this interesting stage of the art, but my space obliges me to go forward at once to notice the next marked period.

This was the period of Bruneleschi and Bramante, who, more fully imbued with the feeling inspired by the arts of the ancients, of which they had so many examples before them which are lost to us, completely eradicated the last remnants of Gothic feeling, and established a style as perfectly pure and consistent in all its parts as it was distinct from either the Gothic or all that we

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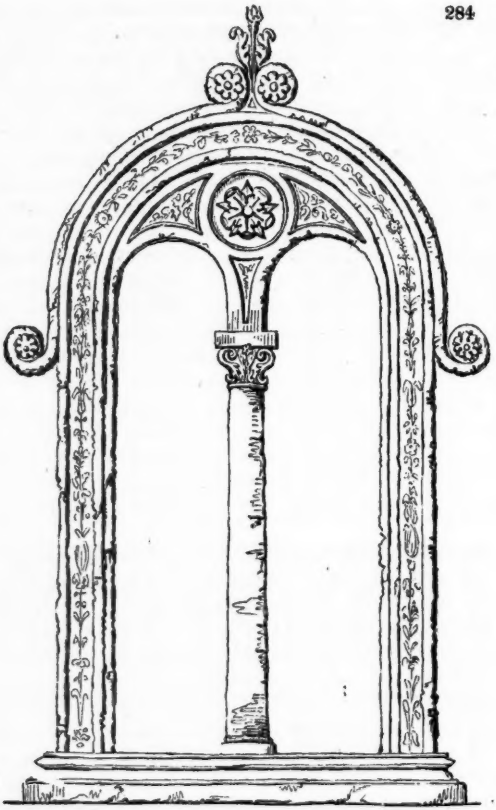
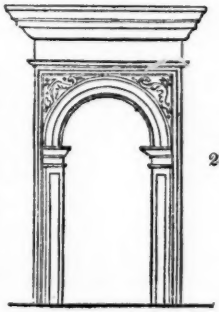


know of the Roman. This was the style called the cinquecento. It is very interesting closely to observe the designs of these great architects, who, with all the great models of antiquity before them, and having totally discarded the Gothic, only took such features as were in accordance with the destination of the buildings they erected. It is possible that there still existed at that time some Roman buildings of a domestic character, which might afford them some hints for the beautiful palatial style which they created (a palace of Domitian is mentioned as still in existence); however, it is certain that they were not seduced by the splendour of those noble columns with their glorious acanthus crown, to insert them where they were not required; they did not imitate the portico, nor were they led away by the grandeur of the noble pediment. Full of the poetic feeling of the great artist,

their models only served them to form new and original combinations, in accordance with the character of the structure which was required of them. These were the great men who conceived the idea of the dome, that triumph of architectural skill, and planned the great St. Peter's; for Michael Angelo was but an after interloper. Bramante, in designing the palaces of which several beautiful examples remain, followed the principles which I have been endeavouring to advocate. The entrance and the windows were made the principal vehicles for ornament; and, since the civil contentions which convulsed the middle ages were subsiding, this feature, in town palaces, which were no longer required to be fortresses, assumed its proper dimensions, and admitted that light freely into the apartments of a dwelling, which the fierce character of the times had long obliged them, for safety, to exclude. So that the palaces of Bramante, and those of that somewhat earlier period when I have described the first innovations upon the Gothic to have been made, are models which, with slight alterations of interior arrangement, might serve for a modern residence. As an example of the graceful windows of Bramante, I give one from the Palazzo Giraud, Rome. (See *fig.* 285.)*



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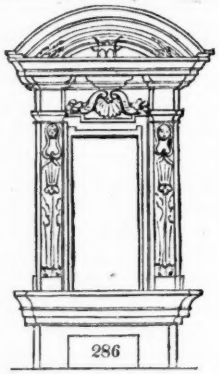
These men were followed by Raphael and Giulio Romano, painters as well as architects, who pared down the style of the cinquecentisti to one of greater severity; but Michael Angelo introduced the first elements of confusion. He took complete columns, Corinthian or Ionic, with their entablatures, &c., for supports of a cornice and pediment above a window; and the only good he effected, in accordance with good taste, was the introduction of a rich cornice, as a final crown to a building; a feature which Gothic architects never understood, and which was but very meagre with the cinquecentisti.

A richer style followed this, but in which windows were again more properly treated, and of which a fair idea may be formed from the sketch (*fig.* 286.) of a window from the Palazzo Medici, Rome.

About this time, the first innovation upon the Gothic took place in England, which gradually produced the Elizabethan style, which has been too much studied by every architect to need an example here. But a style produced by the same

* I regret that this sketch, and that from the Medici Palace (*fig.* 286.), are too small to show the elegance of the details; and that I did not discover this till it was too late to have them altered.

causes, somewhat earlier, in France, known as "le goût de la renaissance," merits the particular attention of the architect, though unequal in purity to the cinquecento of Italy. Th gradual approximation to the Roman in all its features, brought about by the works of San Gallo, Palladio, and others, may be studied by every architect, among the fine seats of our nobility and gentry, of which many belong to that period, and were built by Italian architects.



The last stand in favour of anything approaching to originality and homogeneity of style, in this country, was made by Sir Christopher Wren, who has left several fine works, but few of a domestic character, in which we might study the effect of his style on the windows and entrance doorways of private residences. In France, about the same time, a singular style was produced by similar circumstances, acted upon by different agents, and more especially by Le Brun, the painter. This style has been termed the Louis Quatorze style, and is capable of great richness of decoration, though its ornamental details possess little claim to good taste or distinct meaning: however, it produced a great effect upon the style of this country, after the genius of Wren had ceased to influence the art; and the architecture of the latter part of the reign of William and Mary, and that of the reign of Anne, contained a strong admixture of the taste of the Louis Quatorze. Of this style, specimens of windows, &c., may be seen at Hampton Court; and of the true Louis Quatorze, a good modern imitation may be seen in the façade of Braham's theatre, the design of Mr. Beazeley.

The present period is one of architectural anarchy, and no style can be said to be predominant; in fact, we do not possess a style that can be said to be national, and to characterise the period. A bastard style, which might be termed a sort of Anglo-Romano-Grecian, perhaps takes the lead; but we have imitations of Gothic, imitations of Elizabethan, and imitations of Egyptian, and every other phase of the history of architecture, but no originality. My object has been, by pointing out the proper and natural vehicles for ornament in modern dwellings, and the true principles of adaptation and combination, to lead to the formation of an original style, fitted to the feelings and customs of our present high state of civilisation, in the same way that the following out of similar principles led to the creation of the beautiful cinquecento taste, so perfectly adapted to the state of things that it was devised to embellish.

ART. V. *On the Essentials requisite for the perfect Filtration of Water for domestic Use.* By JOHN ISAAC HAWKINS, Civil Engineer.

(Read to the Mechanical Section of the British Association for the Advancement of Science, at Newcastle, August 25. 1838. Communicated to the *Architectural Magazine* by Mr. Hawkins.)

HAVING forty-five years ago had my attention drawn to the purifying qualities of charcoal, by an account of the discoveries of Lowitz of St. Petersburg, detailed in Crell's *Chemical Journal*, and having repeated many of his experiments, and rendered perfectly sweet and delicious various kinds of putrid meat, fish, game, &c., I frequently related the results to my friends; among whom, the late Mr. Raphael Peale of Philadelphia entered enthusiastically into the subject; and proposed to let water percolate through a stratum of charcoal, in order to separate any putrid substances which might be suspended in it. I joined him and his brother Rembrandt Peale in numerous experiments on this interesting subject; and we called together, nearly forty years since, by advertisement, about 500 merchants and captains, of various nations, in the Exchange Coffee-House of Philadelphia, to whom we exhibited various means by which they could command pure water in almost all situations.

From that period, I tried hundreds of experiments, in order to ascertain the best modes of filtration, both on a small scale for domestic use, and on large filtering ponds for manufacturing purposes; and discovered a number of critical points upon which success depends.

I deem it my duty to lay the results of my very long experience before the public, and therefore beg permission to make this Section the medium of communication. My principal aim at present is, to show how people can, in almost all situations, help themselves to the means of obtaining pure water fit for drinking; and thus I shall incidentally instruct the numerous manufacturers of domestic water-filters, in the essentials requisite for rendering their filters perfect and durable; and many of them, I lament to observe, stand greatly in need of instruction.

It is essential to have the charcoal well burnt: this is best effected in large iron cylinders or retorts, as practised in the manufacture of gunpowder.

A small quantity of imperfectly burnt charcoal may be amended, by being put into a common fire, and made thoroughly red hot, and then extinguished by being covered up in a close vessel.

Clean sawdust of wood, in a sufficient quantity for preparing a small filter, may be burnt in an iron pot, loosely covered, the lower part of the sides of the pot being made red hot, and con-

tinued in that state, until all the sawdust has attained to a red heat; then covered up closely till cold.

This mode of obtaining charcoal for a single filter, is the most convenient, inasmuch as it requires neither pounding, grinding, nor sifting. Thus a very disagreeable annoyance from the black dust is avoided.

It is essential, after the charcoal is burnt, that it be kept from exposure to the atmosphere, because it greedily absorbs any putrid effluvia floating in the air; and thus its power of clarifying water is destroyed.

Charcoal which has been much exposed to the air, before being placed in a filter, will never make the water perfectly clear, but will leave it of an opalescent or slightly milky hue. If the charcoal be pulverised as soon as burnt, or if it be burnt from sawdust, and immediately covered with water, it will keep good for years. The test for its being well burnt is, that, when pulverised, it sinks quickly in water. All that floats must be rejected, as tending to ruin the filter.

It is essential that the charcoal, when pulverised, be free from impalpable powder, yet that the particles be fine enough, and the mass sufficiently compact, to prevent a too rapid flow of the water for perfect clarification. All the dust that will pass through a sieve of 50 meshes in width to the inch, must be rejected.

It is essential that the charcoal be supported upon a perforated material, indestructible by contact with water and charcoal. The most appropriate support is a plate of burnt clay, in which numerous holes, one hundredth of an inch in diameter, are made.

It is essential that the charcoal be covered by some material that will protect it from disturbance by the pouring in of the water. This is well effected by plates of burnt clay, similar to the supporting plates, securely cemented down upon the charcoal.

In order to prevent others losing their time in useless experiments, it may be well to mention, that, before I hit upon the perforated plates of burnt clay, I used a great variety of supporting and covering substances.

1. Two or three layers of flannel upon the bottom of a vessel having numerous holes about one eighth of an inch in diameter, and two or three layers of flannel on the top of the charcoal, the flannel kept down by a plate similarly perforated as the bottom. 2. Silk, which became rotten in about nine months. 3. Flannel, which lasted only three months. 4. Linen, which lasted only six weeks. 5. Horsehair cloth, which became offensively putrid in three weeks. These substances were supported and covered with plates, having perforations of about one eighth of an inch diameter, as in the case of the flannel. 6. Perforated sheets of lead, which became coated with a thick crust of white lead in six months, thus poisoning the water intended to be

purified. 7. Perforated sheets of tin-foil, which became corroded through in three months. 8. Perforated sheets of tinned iron, which were destroyed by rust in a year. Pewter vessels, with perforated bottoms, lasted some years, but were sensibly corroded in a few months.

Having given a very condensed statement of the principal essentials, a statement commensurate with the time of the section, and not by any means with the importance of the subject, I conclude by showing how people, in almost all situations, may help themselves to a good water-filter.

For the simplest and most accessible mode, take a deep garden pot, or other vessel having one or more apertures at the bottom; support it on a brick, stone, or wooden frame, high enough to admit a pitcher to stand under it.

Put in a single layer of clean pebbles, larger than the hole or holes in the bottom of the vessel, suppose pebble of about 1 in. in diameter; on them lay a thin stratum of pebbles of about a quarter of an inch in diameter; and on these a layer of one sixteenth of an inch; on these a stratum of coarse sand. Thus will a complete support for powdered charcoal be formed, and need not occupy more than an inch and a half of the depth of the vessel.

Procure some pieces of charcoal, well burnt, of about one or two inches in diameter; make them red hot in a common fire, keeping them there a few minutes that the heat may penetrate to the middle of the pieces; take them out of the fire, and cover them from the air till cold. Larger pieces would not readily be heated to the middle, and smaller would have too great a proportion converted to ashes. Brush away the ashes, and pound the charcoal in a mortar, or upon a flat stone or a board, until it is small enough to enter a coffee or malt mill. Grind it to the ordinary degree of coarse coffee or fine malt. If no such mills are at hand, the pounding may be continued until the greater part of the charcoal is reduced to about the degree of fineness which the mills would afford.

Then, all that will pass through a common horsehair sieve, or a wire sieve of about 16 meshes in the width of an inch, and will be retained by a lawn sieve of medium fineness, or a wire sieve of 50 meshes to the inch, will be in a fit state for the filter.

Lay upon the bed of sand, before described, 3, 4, or 5 inches deep of this sifted charcoal, previously wetted; ram it down tightly; lay a piece of linen, flannel, or other permeable temporary covering, on the surface of the charcoal, and pour water on it to the depth of half an inch. If that water all runs through in less than 15 minutes, ram the charcoal again, repeating alternately the operations of pouring on water and of ramming, until about 2 in. depth of water per hour, will pass through. Remove the linen or other perishable covering, and then lay on

a thin stratum of the finest part of the charcoal retained in the coarser sieve, and upon that a stratum of the coarser charcoal, no pieces exceeding the size of cherry stones; lay a thin stratum of pebbles of about one sixteenth of an inch in diameter; on these a layer of pebbles a quarter of an inch; and on them a final layer of pebbles about an inch in diameter, deep enough to form a cover not to be disturbed by the pouring in of the water.

Thus will be prepared, by means in almost every person's reach, in every situation, a water-filter as perfect as can be made, as far as the use is concerned.

If portability be an object, perforated plates of burnt clay should be obtained, and cemented into the bottom of the vessel and upon the top of the charcoal.

Thus would be formed a filter, differing only in respect to figure and ornament from the best filters offered for sale.

If proper sieves cannot be obtained, a substitute may be made by spreading the pounded charcoal over a flat stone or table, and scraping the charcoal to one end or side of the table, by a straight rule, around the ends of which a piece of thick paper or thin card is tied, so as to keep the ruler about a hundredth part of an inch above the table. This will leave all the impalpable powder and fine dust unscraped away, which may be then swept off and rejected as not only useless, but injurious in being too fine to allow of free percolation.

Then bind an additional thickness of paper or card on each end of the rule, so as to raise it about one twentieth of an inch above the table, and with it scrape the charcoal back over the table to the other end, when all that remains unscraped will be fit for use. The rest to be again alternately pounded and scraped over the table, until a sufficient quantity is obtained.

Some of the portable water-filter makers place a stratum of sand upon the charcoal, with the view of arresting the grosser particles of dirt in the water. This is a great blunder; since the minute interstices between the particles of sand will be quickly stopped up, and the filter become impervious to water, in one twentieth part of the time that it would take to choke the coarse charcoal, which ought to form the upper surface next below the pebbles or perforated plates.

A layer of sponge is very beneficial to receive the dirty water and retain its grosser impurities; which sponge may usefully be washed once or twice a month, or whenever the filter yields too little water.

Thus will the charcoal, when properly prepared and fixed, continue daily to render water perfectly clear and sweet for years. I have known a filter constantly used for ten years, with the river Thames water, without any renewal of the charcoal.

Thirty years ago I was the only manufacturer of charcoal

water-filters in London, perhaps in the world; and, as I could not sell enough to make the business worth my carrying on, I gave it up to one of my journeymen, Mr. Stone, late of Warwick Street, Golden Square, London, from whom all the present race of filter-makers have sprung.

I rejoice to observe such a numerous progeny, whom I have a right to consider as my grandchildren: and I rejoice, too, in the great extension of the sales, as indicating that mankind are beginning to learn the important fact; a fact very little known when I first offered water-filters for sale, and even now not yet sufficiently appreciated; I mean the fact, that water is a useful article for drink!

Chase Cottage, Hampstead Road, Nov. 1838.

ART. VI. *Notice of an Instrument to be used in Land-Surveying, for reducing the Length of Lines over undulating Surfaces to the Length of the Base, or level Line.* By RICHARD VARDEN, Architect.

THE instrument which I am about to describe is of considerable service to persons engaged on parish or other large surveys, for allowancing their measuring chain on hilly ground; and, as it is but little known, you may like to have some account of it in the *Architectural Magazine*. It was invented by the late Mr. Webb of Salisbury, a surveyor of eminence, who invented and manufactured many of his own instruments; and his grandson, who made me acquainted with it, continues the use of it, as do several other surveyors in this neighbourhood, all of whom find it of material service. It consists of a wooden quadrant (*fig.* 287.), 5 in. long and 1 in. thick, let into the curved edge of which is a bent glass tube, nearly filled with spirit, and hermetically closed. The edge of the quadrant is covered with a plate of brass, divided in a manner similar to the scale for ascertaining the difference between a base and hypotenuse line which is on most theodolites. The mode of using it is, to place the bottom, or flat part, on an offset staff, laid parallel with the surface of the ground, the point *a* being towards the ascent. Thus placed, the air bubble in the tube will stand against the figured brass scale, and indicate the number of links that must be added to every chain's length for

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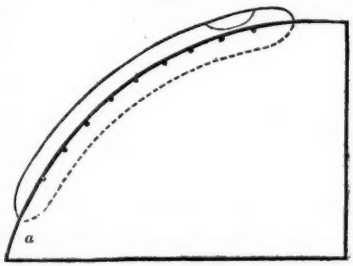

that inclination. This allowance is to reduce the length of lines measured over sloping or undulating ground, to the length of the base, or level line, and is necessary in every survey, as the base of the land, and not the surface, is to be computed.

Worcester, Oct. 19. 1838.

ART. VII. *Notice of Two Rocking-Chairs.* By JAMES FREWIN, Builder.

MR. FREWIN saw these chairs at his friend Colonel J. C. Laville's, at St. Louis, in the state of Missouri, in the United

States, when on a tour in that country in the summer of 1838; and he then made the sketches from which *figs.* 288, 289. have been engraved. The chairs are made just high enough in the back to reach up to the back part of the head of the person sitting in them, so as to enable him to rest his head on it in rocking. The least motion sets the chair going, and the movement is found to be extremely easy and agreeable.

Chairs of this kind are made chiefly at Boston, which is the

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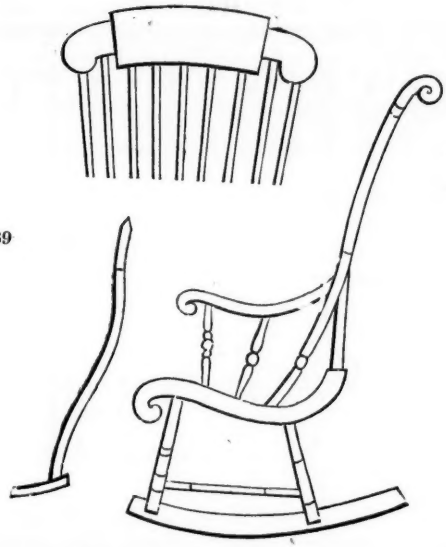

great emporium for furniture in North America. *Fig.* 288. is made of mahogany, and costs at Boston about 40 dollars, or 8*l.*; but some of this kind are made with more carving, and cost a good deal more. *Fig.* 289. is made of birch, elm, or any more common wood and costs at Boston about 2*l.* 10*s.*

In America it is considered a compliment to give the stranger the rocking-chair as a seat; and when there is more than one kind in the house, the stranger is always presented with the best.

Hertford Road, Kingsland, Aug. 1838.

ART. VIII. *Description of the Market of Covent Garden, London, built from the Designs of Charles Fowler, Architect, F.I.B.A.* By the CONDUCTOR.

THE market of Covent, or Convent, Garden is so named from its site having been once the garden of a convent. It occupies a space measuring 326 ft. from east to west, and 248 ft. from north to south, and consequently covers nearly two acres of surface. This space, before the present new building was commenced in 1828, was partially covered with open sheds and wooden structures, which had not the slightest pretension to uniformity or any other architectural beauty, further than that most of them were ranged in straight lines from east to west. With the exception of the beauty of the articles

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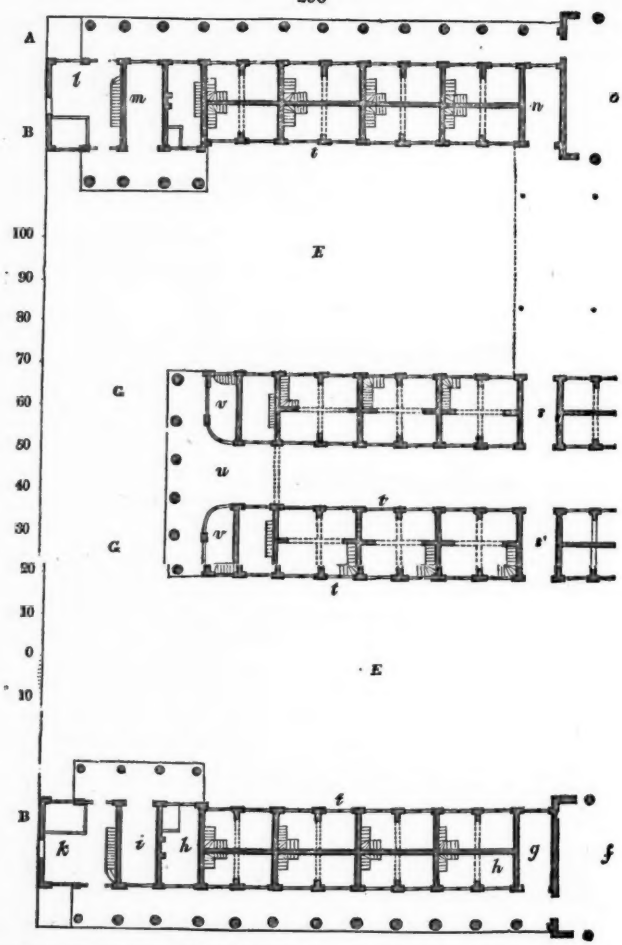

a, Quadruple colonnade, over which is the conservatory rented by Cormack and Oliver.
b, Quadruple colonnade, over which is the conservatory occupied by Hockley and Bunney.
c, Public house.
d, Passage.
e, South stair to the conservatory.
f, Open casual potato market, or space which may be appropriated to general purposes.
g, Passage.
h, Two public houses.
i, Passage.
k, Seed and herb shop, occupied by Mr. Butler.
l, Seed and herb shop, occupied by Mr. Dickson.
m n, Passages.
o, Open casual fruit-market, or space which may be generally appropriated.
p, Passage.
q, North stair to the conservatories.
r, Wholesale fruit and potato warehouse.

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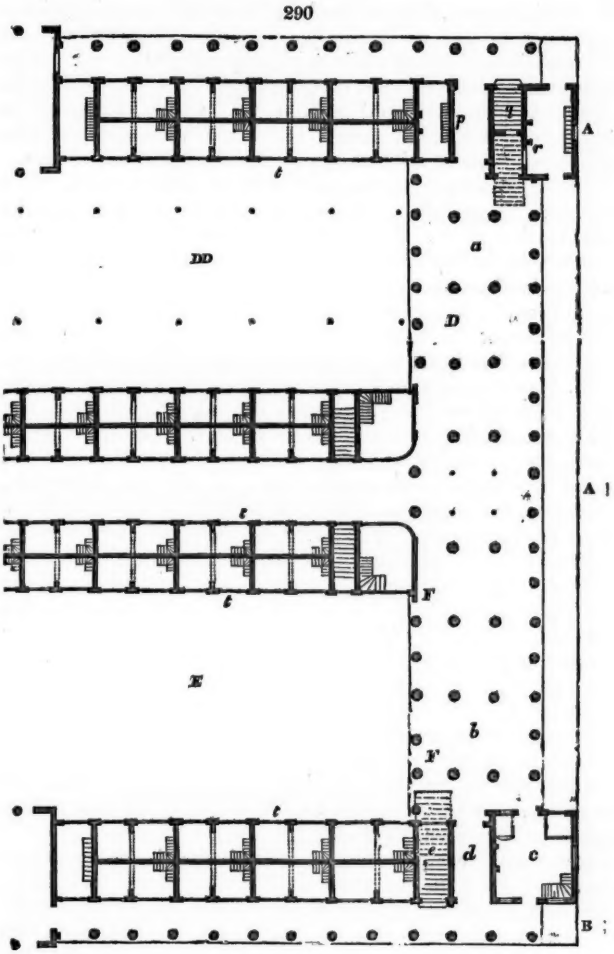


s, Passages.
t, Shops and dwellings over.
u, Portico, with terrace over it, for hardy plants.
v, Shops, with rooms over for eating fruit and ices, communicating with terrace over the portico.

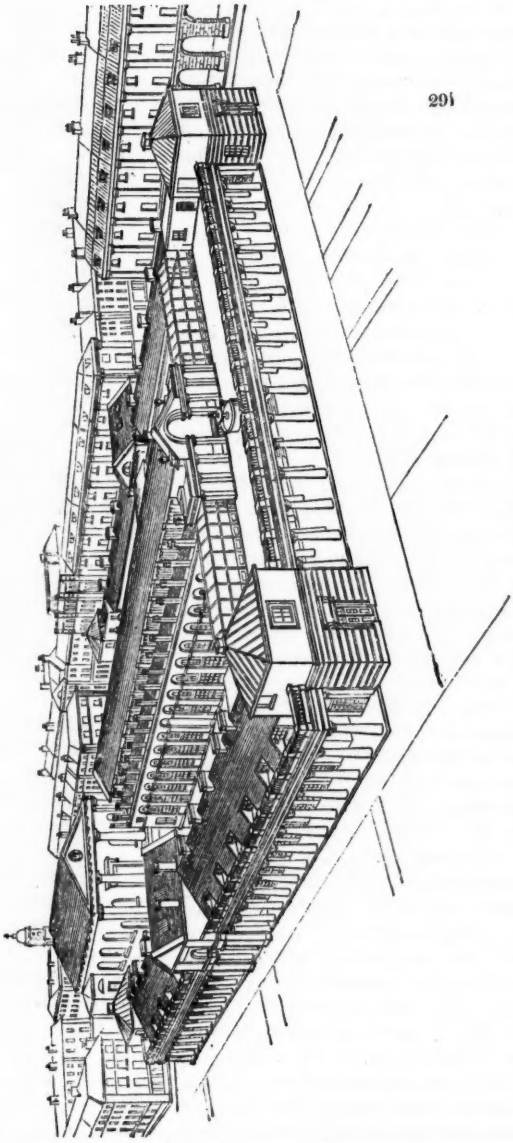
A, Area, 12 ft. deep and 9 ft. wide, apportioned in spaces for casualty stands; that is, stands for any grower or dealer, not a regular tenant, who chooses to send articles to market.
B, Cart or waggon stands, 12 ft. deep and 9 ft. wide; taken by the market-gardeners or garden-farmers by the year.
C, Potato stands, 10 ft. wide.
D, Fruit-market. DD is roofed over, the roof being supported by iron pillars joined by spandrils.
E, Open pitching stands for vegetables and potatoes, rented by market-gardeners as yearly tenants.
F, Covered pitching stands for fruits and vegetables.
G, Flower-stands for plants in pots, in balls of earth, and for nosegays.

sold, which were at all times the best the country could produce, every thing else had a disorderly appearance; frequently joined to litter, refuse, decaying matters, accompanied by an intolerable stench, and an obvious want of cleanliness. As the population of London increased, and with it the supply of vegetables brought to this market, very considerable inconvenience was experienced, both by sellers and purchasers, from want of room.

Various plans have been suggested for its improvement. We recollect an ironmonger talking of throwing a glass roof over the whole market at the height of 50 ft. from the ground, to be supported on hollow cast-iron pillars; some of which were to serve for the descent of water from the roof, and others for the ascent of smoke from the fireplaces in such living-apartments or shops as might be constructed below. In 1827, a plan was submitted to the Duke of Bedford, as proprietor of the market, by Mr. Fowler, and exhibited at Somerset House in the same year. A model was soon afterwards formed from this plan, and exhibited to all those interested in the market. The ground plan of this design, which was engraved in 1827, exhibits three parallel buildings, each surrounded by an open colonnade. Exterior to the buildings is a space sufficiently wide to allow a row of carts and waggons to arrange themselves, side by side, the horses' heads pointing from the building, without interrupting carriages passing along the street. We understand the chief objection to this plan was the occupation of so much space by the colonnades. In other respects it does not differ essentially from that executed.

In 1827, the Duke of Bedford, having procured an act of parliament for the rebuilding of the market, employed Mr. Fowler as its architect; and by the suggestions of Mr. Charlwood, who was employed to arrange the ground plan, distribution, and appropriations of the different departments of the market, the plan of Mr. Fowler was altered till it assumed the form of that about to be described. (*fig.* 291.)

Approaching from the east, the chief feature is the quadruple colonnade (*figs.* 290. and 292. *a*), with the conservatories over. In the central building is a passage 16 ft. wide (*t t u*), open to the roof, and on each side a range of fruit-shops, forced articles, and the more choice culinary vegetables and herbs. Each shop has a cellar under and a room over it, with a trap-door to the former and a small staircase to the latter. There are two exterior colonnades on the north and south sides (B A C C), which serve as passages in front of the shops. The shops on the north side are for different descriptions of culinary vegetables and the commoner fruits, and those on the south side are exclusively for potatoes and the commoner roots. The half of one of the areas (D D) is covered with a roof in three parts, open at the



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Perspective View of the Market of Covent Garden.

sides for ventilation and light; the roof is supported by cast-iron pillars, from which spring circular ribs, instead of horizontal tie-beams; and the result is a very light appearance. Under it is held the wholesale fruit-market, and below the surface are fruit-cellars. The open space (F F D) under the quadruple colonnade is occupied at one end as a fruit-market, and at the other with stands for fruits and vegetables.

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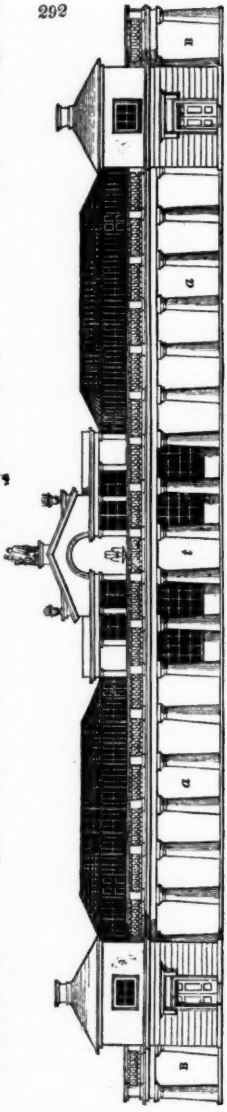

East Elevation of the Market of Covent Garden.

The ascent to the conservatories over this open colonnade is by four staircases, two from the central passage (*u u t*), and one from the end (*e q*) of each of the exterior colonnades. The framework of the conservatories is wholly of cast iron and copper, even to the shelves of the stage (*fig.* 293.); and the work is executed with remarkable neatness, by Messrs. John Jones and Co. of Birmingham. The conservatories are 15 ft. broad, and 15 ft. high: they do not occupy more than a third of the area of the terrace, and the remaining part serves as a promenade, and for the display of hardy plants in pots and vases, and other garden ornaments. In the centre of the terrace is a handsome fountain (*fig.* 294.), designed by Mr. Fowler, and executed in Devonshire marble, highly polished: the machinery was furnished by Messrs. Braithwaite. The water is supplied from a cistern, or rather a series of connected cisterns, placed immediately under the roof of the grand central passage. Adjoining each conservatory, and in the occupation of the same tenant, is a small room devoted to books, plans, models, and other new or interesting objects connected with agriculture or gardening, and also an office or counting-room and other conveniences. One of the conservatories is occupied by Messrs. Cormack and Oliver, nursery and seedsmen, of New Cross, near Deptford; the other by Messrs. Hockley and Bunney, nursery and seedsmen, Kingsland Road.

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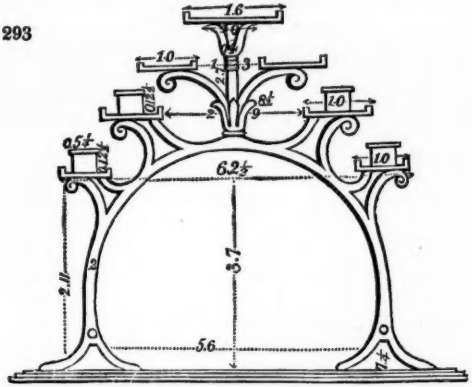

There are cellars below all the fruit-markets, under all the buildings and pathways, and continued through one side of the long market (E E), for storing up potatoes. There are rooms over all the shops, used partly as store-places and partly as bedrooms.

Both the open and covered markets are inaccessible by carts and waggons. There are circular openings or manholes, 2 ft. in diameter, in the floor of the long market (E E), which communicate with the cellars, and through which the potatoes are shot down; and there are openings by trapdoors to the

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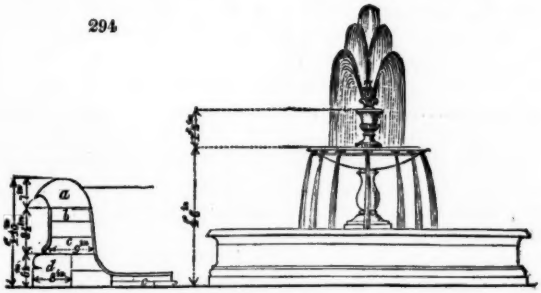

cellars of the fruit-market for similar purposes. The openings by which the potatoes are brought up from the cellars are within the buildings. There are also cellars for washing the potatoes, and water is laid on for this purpose, as well as for general uses, throughout the whole of the buildings. The supply is obtained from an Artesian well, sunk beneath the central path to the depth of 280 ft., which affords 1600 gallons per hour, a quantity greatly exceeding any occasion that can be expected to arise. A small steam-engine, on Braithwaite's most improved principles,

has been erected, to distribute the water over the higher parts of the buildings, and the whole area of the markets; and, more especially, to supply the handsome fountain before mentioned, on the terrace in front of the conservatories. In the centre of the market there is an apparatus, by attaching hose to which the whole surface of the market can be washed and effectually cleaned in a few minutes. By the same means, also, fire may be instantaneously extinguished. The central passage (*u t t*), the exterior colonnades, and every other exterior part, independently of the interior of the shops, are lighted by gas.

The exterior walls of the shops, cellars, &c., are of brick, faced in conspicuous situations with Yorkshire freestone. The columns are of Scotch and Devonshire granite, the shafts being of one stone each. The paving of the passages is partly of granite and partly of Yorkshire stone. The open and covered markets (E and DD) are causewayed with granite, in the manner of the best street paving. The terrace over the quadruple colonnade is composed of large slabs of stone, which form at once the floor of the terrace and the ceiling of the colonnade. From the terrace the water is drained into hollow cast-iron beams, on which the stones rest. These are supported chiefly by granite columns; but in the centre compartment, indicated between D and F, some are of cast iron, for the purpose of obtaining more light and space directly in front of the central passage. The exterior passages, including the shops, are covered with slate and zinc. The whole was admirably executed by Mr. William Cubitt, of Gray's Inn Road, by contract. The work was begun in September, 1828, and finished in May, 1830. It raised Mr. Fowler to the very first rank as an architect; and confirmed, if confirmation were necessary, the high opinion every one entertained of the skill, integrity, and honour of the contractor.

The conservatories are heated in a new and very ingenious manner by hot water or by steam, at pleasure, according to a plan devised and executed under the direction of Mr. Colling, a very ingenious engineer.

The appearance of the market is on every side highly architectural, though the accompanying perspective view of the east front (*fig.* 295.), copied from one obligingly lent us by Mr. Fowler, is too small to give any adequate idea of the elegance of the design.

To walk through this market, with the recollection of what it was ten years ago, gives rise to a variety of reflections. By what cause has it come to pass, that the pillared grandeur and temple-like magnificence, which in former and no distant times were exclusively devoted to the edifices consecrated to the gods or occupied by princes, are now judged appropriate to the scene

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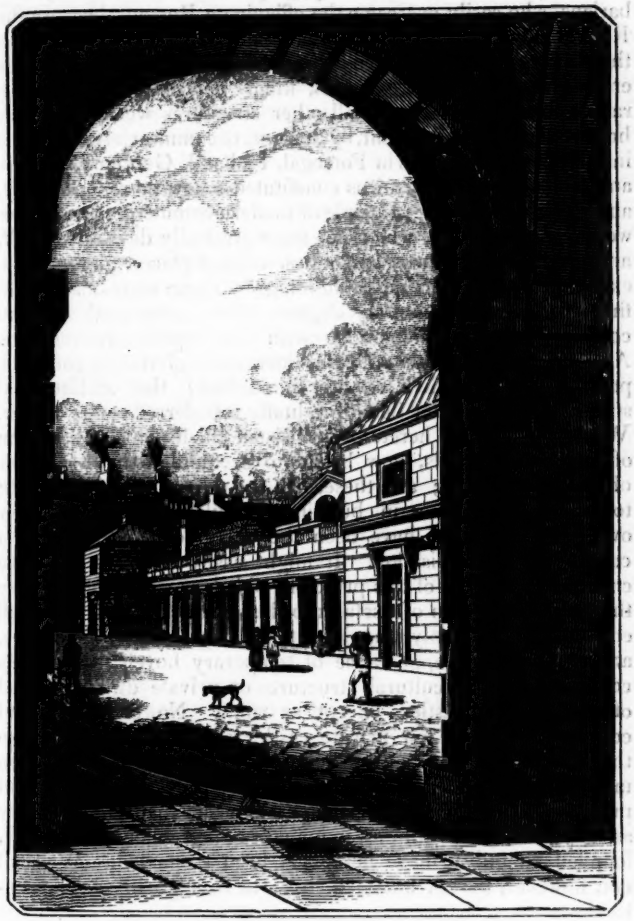

Perspective View of the East Front of the Market of Covent Garden.

of humble industry and the abode of every-day people? Is this change merely attributable to the accidental circumstance of an individual being at once rich, patriotic, and a man of taste; or is it the result of any general principle in constant operation?

In the days of the Grecian republics there were no magnificent buildings but the temples, and those were erected at the general expense. The Roman emperors built sumptuous palaces, and some of their favourites had magnificent country villas. All these

were, in process of time, destroyed by the inroads of hardy barbarians, who easily overcame the effeminate Romans, because the Roman empire had then no foundation in moral strength. In the dark ages which succeeded, the only magnificent buildings erected were churches, convents, kings' palaces, and castles, or rather fortresses. Almost all other structures were temporary hovels, till the establishment, by degrees, of commercial towns; first in Italy, and afterwards in Portugal, Holland, Germany, France, and England. These towns constituted a new power in society, and gave birth to that principle of modern commerce, or, in other words, of civilisation, which has since gradually developed itself, and produced, in towns and cities, market-places, piers, quays, exchanges, and other public buildings. These erections were at first merely useful, but by degrees were constructed so as to combine beauty and character with the requisite convenience. As commercial towns and cities increased, churches, convents, palaces, and fortified castles diminished; the architectural splendour of the latter being gradually transferred to the former. Wealth, which had heretofore consisted chiefly in the possession of lands and vassals, now began to accumulate in the coffers of commercial men; and these, like the others, naturally sought to employ their riches in buildings calculated to further their own pursuits. Such have been the effects of the principles of commerce, or civilisation. It might easily be shown that the continued operation of this principle, aided, as it soon will be, by the general diffusion of useful knowledge and rational taste, will end in almost the only magnificent buildings being public ones, and in the total disappearance of temporary hovels, whether as commercial or agricultural structures or private dwellings, and of palaces and castles, except as ruins. No cathedrals and convents, and but few private castles and palaces, similar to those of Europe, will ever be erected in America; but such market-places, colleges for education, parochial institutions, and public gardens, will be erected and laid out in that rising country as it accumulates wealth, as, in point of real grandeur and beauty, founded on utility, have never yet been surpassed. We shall not, however, permit ourselves here to indulge in such speculations.

As contemporaneous buildings of the same class as Covent Garden Market, we may notice some other very handsome erections in foreign countries, the work of the end of the last or the commencement of the present century. The first are the bazaars of Moscow and Petersburg, which are large quadrangular buildings, enclosing an open square used as a market, and surrounded exteriorly with open colonnades or arcades like those on the north and south sides of Covent Garden Market: and under these colonnades are shops with rooms over, exactly

like those which have been described as having been formed in Covent Garden. The Exchange of St. Petersburg is also a remarkably handsome building, only surpassed by that of Paris, which is the handsomest work of the kind, we believe, on the Continent. The only commercial building in London which ranked with these, previously to the commencement of the present century, was Gresham's Royal Exchange; the work of an individual; and as great an effort, relatively to the times in which it was produced, as is the Covent Garden Market erected by the Duke of Bedford to the present era. Another building which, it might be supposed, would challenge competition with the magnificent foreign structures we have just alluded to, is the Bank of England. We know not what the interior of this structure may be; but the exterior, designed, we believe, by at least two architects reputed to be at the head of their profession, has always struck us as a singularly unfortunate display of architectural design. Columns, which, to be grand and imposing, ought always to be, or to appear to be, essential component parts of an edifice, are here reduced to mere ornaments. They abound to such an extent as to destroy simplicity, as well as grandeur of character; and, frittered down by petty projections in the entablature, interspersed with blank doors and windows in some places, and crowned with cinereal urns in others, produce so anomalous an effect, that a stranger walking round, and inspecting the different fronts, would be puzzled to conjecture the purpose of the huge pile. Viewing it from the north-west angle, it might well be taken for a metropolitan sepulchre; from the west side, a prison; from the north side, the walls and gates of a timber-yard; from the east, a stable-yard; and as to the south front, whoever has seen the Campo Morto at Pisa must be struck with the resemblance. Very different, indeed, is the new Post-Office, which, at once simple and grand as an architectural pile, conveys, as to character, exclusively the idea of public business. Covent Garden Market is also a structure at once perfectly fitted for its various uses; of great architectural beauty and elegance; and so expressive of the purposes for which it is erected, that it cannot by any possibility be mistaken for anything else than what it is.

Covent Garden Market, we hope, may be considered as the commencement of a new school in architecture; and this school we should wish to distinguish as that of Reason and Progression, in contradistinction to the prevailing school, which may be denominated the School of Authority, or the Stationary School. The architects of the Bank of England clearly belonged to the latter school, and the architect of Covent Garden Market, of the Hungerford Market, of the Exeter Meat and Corn Market, and of the Botanic Conservatory at Syon House, as clearly

to the former. The School of Authority considers nothing as architecture, for which some precedent may not be found in the buildings of the Greeks and Romans; and nothing legitimate in that architecture, which cannot be subjected to the rules of one or other of the five orders. Hence the buildings usually denominated Gothic are rejected by the more rigid disciples of this school, as not belonging to architecture at all; much in the same manner that some sects of Christians deny that the religion of Mahomet is entitled to be denominated a religion. Bigotry and intolerance exist in the arts and sciences, as well as in philosophy and morals; and in no arts have they been more influential in retarding improvement than in architecture and agriculture. In agriculture, we have lawyers and land stewards insisting on the insertion, in agricultural leases, of the same clauses respecting culture and management which were in use three centuries ago, when farmers were little better than cattle, yoked and driven by their landlords. In architecture, we have architects contending for forms and proportions calculated exclusively for a particular purpose and a particular climate, in a state of society as different from the present as darkness is from light. Nothing, however, exists for which there is not a cause, and that cause founded in nature. Things are chiefly good or bad relatively to circumstances.

The Stationary Schools, both of agriculture and architecture, were very good schools when mankind were in more danger of retrograding in arts and civilisation than of advancing. Where all are not enlightened, the many must always be led by the few; these few, whether in politics or in the arts and sciences, form the Stationary School; and the principle of self-preservation will render that school jealous of its power, and consequently, adverse to all innovation or interference. There is, however, no Stationary School in nature; and, taking a general view of past ages, mankind have always been progressing, however slowly, towards something better. In modern times, the ratio of this progress has greatly increased, and the School of Reason is now everywhere in conflict with the School of Authority. The first grand shock which the School of Authority in agriculture received was the introduction of clover, turnips, and the artificial herbage plants, into field culture: the first assault upon the Stationary School of architecture was the employment of cast-iron; first in bridges, and afterwards in houses, gates, and fences. A cast-iron bridge is an abomination to the Stationary School of architects; and what is called an open lease is the same to the Stationary School of land stewards.

The reader may trace for himself the progress of the conflict between the Stationary and Progressive Schools in both arts; we shall confine ourselves to stating that Mr. Fowler is one of

the few modern architects who belong to the School of Reason, and who design buildings on fundamental principles, instead of antiquated rules and precedents. In designing Covent Garden Market, his first object was to produce all the accommodation and conveniences which such a market required, or was susceptible of receiving from modern improvement in the arts subordinate to architecture; his next object was, to make choice of the most suitable materials for executing his design, so as to combine strength and durability with moderation in the expense; and his third object was, to compose the forms, arrangement, and materials, in such a manner as to produce as high a degree of architectural beauty as was consistent with the other objects. In searching for this architectural beauty, he did not confine himself to the architecture of any age or country, much less to any particular order in the Grecian or Roman Schools; but, adopting unity of expression as a whole, and symmetry, regularity, and connexion of the parts of that whole, as fundamental principles common to all architecture whatever, past, present, or to come, he drew from all that he found already existing, and from his own imagination, what best suited his purpose. How admirably he has succeeded in producing a whole of great architectural beauty, and perfectly suited to every required purpose, may safely be left to every unprejudiced observer to determine.*

ART. IX. *Fragments connected with Architecture and the Arts, from a Provincial Tour.* By HENRY NOEL HUMPHREYS.

RAILWAYS AND RAILWAY ARCHITECTURE.

ON arriving at the terminus of the London and Birmingham railway in Euston Square, the traveller is at once impressed with a great idea of the importance of this wonderful national work, by the imposing aspect of the entrance. This massive piece of architecture is in the Grecian Doric style, displaying little invention in the design; and yet the general effect is sufficiently imposing to demonstrate the full truth of the axiom, that magnitude alone forms a principal ingredient in architectural grandeur. The columns are 8 ft. in diameter and about 40 ft. high; dimensions not to be rivalled, I believe, by those of any modern building in the style. Yet how vastly surpassed by the stupendous works of the early Greeks; and if these proportions are sufficient to impress the mind with feelings of wonder and admiration, let the

* To complete the symmetry of the building, a colonnade and terrace are wanted at the west end, similar to those at the east end; and a roof over part of the potato-market, similar to that over part of the fruit-market: but these were contemplated in the original plan, and will no doubt be executed in due time.

beholder imagine, if he has not seen, one of the great Sicilian temples in this same style, of which, in common with those of Attica, they are the original models; and picture to himself the effect produced. The temple of Jupiter, for instance, at Agrigentum, nearly doubles the proportions of this massive gateway, the diameter of the columns being 13 ft., in the flutings of which a man may stand concealed. Standing beneath this noble railway entrance, let the spectator suppose its vast columns nearly doubled in magnitude, and he will thus, if he has not seen them, be able to present to his imagination a vivid picture of those stupendous works of ancient art, when they existed in all their splendour and newness.

I have contrasted the gateway with the works which served it for models, and found it shrink in the comparison. The great work, however, to which it serves but as an introduction, need fear no such ordeal; for the railways of our day stand unrivalled in the history of the world, as monuments of human science, power, and perseverance. The guide-book, happily enough, terms it a truly Roman work, carried on and completed with Roman perseverance. But it is a more than Roman work; for, without entering at first upon less direct points of comparison, it is simply and at once a work far surpassing in extent any artificial road or means of communication ever effected by that wonderful people. I am, of course, now speaking of the whole line from London to Liverpool. Their aqueducts approach nearer in extent, enterprise, and expense, than any other of their works, to the labours of a modern railway. These, as it is well known, were common all over the empire: but those at Rome itself were the greatest, both in extent and splendour; some of them conveying water from a distance of forty miles to the centre of Rome. A spring of pure, or peculiarly limpid, water was no sooner noticed among the hills that on three sides gird the wide plain in the centre of which stands, still stands, Rome, than an emperor, or perhaps a wealthy citizen, was found to exclaim, "I will convey it to the city." Canals and tunnels were cut through the solid rock of the mountain, regardless of labour, expense, time, or the unexpected oppositions of Nature herself; brought to the foot of the hills, this prized element was conveyed a distance of from fourteen to twenty miles across the plain, by means of an aqueduct supported upon arches of stone, highly finished with architectural embellishments, and frequently enriched with a profusion of statuary. Two of these wondrous works are still sufficiently perfect to fulfil their original purpose, and still supply the eternal city with water. But what are these works to the great railway that connects the ports of London and Liverpool, and, by the aid of science, annihilates the intervening space of 200 miles by which they are separated. This work, with its bridges, tunnels, viaducts,

excavations, and embankments, immeasurably surpasses the most extensive aqueduct of the Romans; while the greatest tunnel excavated by them or their predecessors, with which we are acquainted, the Grotto of Pausilippo at Naples, is surpassed by the single work at Primrose Hill. In mere extent it is a more than Roman work. There are other considerations. How were the great works of the power of Rome produced? They were the work of slaves. Titus employed 40,000 Jewish prisoners, the victims of an unjust war, condemned to eternal slavery, to build the Coliseum; all the great works were the product either of domestic slaves, or of the victims of unjust wars; they were produced by oppression and unrewarded toil. Our great railways, on the contrary, have been the means of dispensing food and comforts and instruction to the remotest homes of a population of free labourers. . . .

The entrance to the great tunnel under Primrose Hill, the first on the line, is conceived in the right feeling, presenting exactly the effect required. On entering this subterranean road, bored through the very heart of the hill, whose superincumbent weight seems ready to overwhelm and crush in any work of less than cyclopean strength; it was necessary to reassure the timid traveller by such a parade of strength as is well expressed in the design of this entrance, every feature of which conveys the idea of force and stability. This, and all the other architectural works on the Birmingham line, are the designs, not of an architect, but of an engineer; the engineer of the Birmingham line, Mr. Stephenson; whilst the terminus at Euston Square is the work of a professed architect. Here we see, in strong contrast, the work of a man guided alone by the great principle of good taste, fitness; and that of a man in the leading strings of the five orders. The terminus is a work called into existence by the study of Grecian temples, with little in its design that fits it peculiarly for its locality and purpose. The entrance to the tunnel, on the contrary, has received its form and proportions by the inspirations alone of place and purpose, which, in the hands of genius, must ever produce works more in accordance with the true principles of taste, which are in fact those of fitness. We plunge beneath the lofty arch of this noble passage, which is rather a gallery than a tunnel. What we should call tunnels, on the famous road of the Simplon, were, by the engineers of Napoleon, termed galleries; and here is a work, the extent of which entitles it much more strongly to the name. . . .

Here * we enter an excavation through a stratum of compact blue stone, of more than a mile in length, whilst the depth often exceeds 50 ft. In augmentation of the vast labour required to

* At Roade.

such a work, it was found, before the required level was attained, that this stratum of rock rested upon one of clay insufficient for its support, so that an artificial foundation had to be formed; and, throughout great part of the extent, the rock is underpinned with solid masonry. What are the Roman cuttings at Terni or the Lago di Narni to this? . . . .

CANALS AND RAILWAYS.

. . . . We now pass through a short tunnel which carries us beneath the London road, just beneath the Weedon barracks, and soon after above the canal. Canals, some eighty or a hundred years ago, were making a similar sensation through the country to that made by the railways now; and it was probably a still greater step for the period. The Duke of Bridgewater, and other promoters of that mode of conveyance, were considered then as wild schemers as the railway promoters ten years ago. The canals cut their way through the heart of the country much in the same way as that in which I have been attempting to describe the course of the railways; and in their various lines influencing the destiny of districts, and calling into importance places hitherto doomed to obscurity. But their lines were less boldly taken, avoiding anything like a tunnel or excavation of any length, and therefore often circuitous. Where a rise could not be avoided, the ingenious, but somewhat cumbrous invention, the lock, was resorted to, which, besides loss of time, increased by tolls the expenses, of transit. Nevertheless the system was an amazing improvement upon waggon carriage by the villanous roads of that day, being far more expeditious as well as more economical. But the moral influence produced by canal lines, upon the districts through which they passed, was very different from that produced by railways. The boats were conducted by a low set of fellows, demoralising and disturbing the inhabitants along their route. Indeed, in many cases, the towing pathway of the canal was proverbially a scene of depredation, and dangerous to pass by unprotected individuals; whilst the boats carried little except heavy merchandise, only influential in a commercial point of view. How different is likely to be the moral influence of a great railway! A strict police is maintained along the whole extent of the line, thus adding to the security, instead of disturbing the repose and morals, of the country; and, instead of being confined to the carriage of heavy merchandise, cargoes of intelligent passengers, many of the best educated classes of society, are carried along these lines, and deposited at the various stations, bringing with them money and intelligence, and spreading civilisation widely over the face of the country. The influence of canalling upon the arts was, if more harmless than its moral effects, far from producing any improvements, as may easily be seen by a very cursory glance at the bridges and other works on the lines; whilst railways promise to give quite a new

and original impetus to architecture. Such are the different results of works carried on at different stages of civilisation. . . .

RAILWAY ARCHITECTURE.

The Kilsby tunnel is the longest on the line, being 2400 ft. in length. The expense of construction, from the unfavourable nature of the soil, was enormous; nearly doubling the original general estimate, which was 20*l.* a foot for the small tunnels, and 30*l.* for the long tunnels. The entrance is a copy of the gateway of a feudal castle, or fortified town, which, considering the relative proportions, must be considered a happily selected model. The machicolations form a good architectural feature, reduced to trusses supporting the cornice; yet, on the whole, I should perhaps have preferred a completely original design; at all events, I venture to pronounce the execution of the idea as too meagre, and failing to convey that sentiment of enormous strength which is at once inspired by the design at Primrose Hill. It is, in fact, beneath its model; at least such a model as might have been selected from numbers still in good preservation. Take, for instance, the one at Carisbrook, or the old gate at Winchester, or fifty others I could name, which, by lowering the height of the proportion, would have made splendidly massive railway entrances. The one in question appears, from its circular arch, and the style of the machicolations, to have had an Italian model; and, though I am a staunch advocate for the study of the Italian Gothic, which has been so strangely neglected by the majority of our architects, yet I do not think its adoption felicitous upon the present occasion. It wants the massiveness of the northern style, and its comparative lightness is felt unfavourably in such a situation as this. The transit through this great tunnel is twice enlivened and lighted by two vast shafts to the surface, upon a scale so grand, that they appear rather the vaulting cupolas of an immense cathedral, than the mere shafts for lighting and ventilating a railway tunnel. The light admitted through the apparently small aperture at the top produces a fine effect, as it descends, irradiating from a single point, over the vast surface of the vault, and struggling, as it advances, with apparent darkness, till it is eventually lost in the black depth below, through which we pass, but pass too rapidly to appreciate all the sublimity of the effect. I was reminded of the *Sette Sale*, as they are vulgarly termed at Rome, those stupendous head-quarters of the vast sewerage of the ancient city, which are perhaps its greatest wonder. As the work of the empire with its universal dominion and limitless power, they would have been a great work; but as the effort of a Tarquin, ruler of a kingdom no larger than a petty German principality of our day, at war with all its neighbours, they were indeed a stupendous undertaking, and were alone suf-

ficient to stamp the people who effected it with the signet of power and empire. These reflections suggest to me that the vomitory of the Cloaca maxima would form a capital model for a tunnel entrance; and, made to pierce a massive wall of what is termed cyclopean structure, would convey a noble impression of ponderous strength. I am astonished that the cyclopean walls have not been imitated in some of our railway structures; the style is quite in poetic accordance with the vastness of these stupendous works. What a text to compose upon is presented in the well-known Gate of Lions at Messene; a model teeming with strength, and frowning majesty in its noble rudeness. . . .

. . . The Brandon skew bridge is a most finished piece of brickwork. It has an angle of 28 degrees, its span is 76 ft., and it rises in the centre but 7 ft. 6 in. The railways have done more to advance the scientific part of architecture, than a century without such advantages would have effected. Before the projection of these great works, the erection of a bridge or a viaduct was an event of importance, and might almost be said to mark an era in the history of the art; whilst, in the railroads now in progress, such works may be counted by hundreds instead of units; and the impulse such a call has given to invention and design, as well as constructural skill, is best estimated by the beauty and originality of many of the works. The railway has been as great a boon to the architect as to the merchant and the traveller. . . .

. . . The cuttings through this stratum of red sandstone* are in many parts judiciously left untrimmed; so that we pass through a magnificent avenue of picturesque rocks, which has, in English travelling, a novel and beautiful effect. It reminded me slightly of the passes of the Simplon and St. Gothard. The company have taken advantage of the quarry they have thus been obliged to work, and used a portion of the stone in the construction of various works in this part of the line. . . .

POLYCHROMY.

. . . Across the Beechwood excavation through this solid rock, where upwards of 193,766 cubic yards of stone have been removed, is thrown one of the most beautiful structures of the whole line. It consists of a single arch of 76 ft. span, springing from the natural abutment of the naked rock, to which it is cemented, as it were, by a bold but simple moulding; and the arch being of the same stone as the rock produces a beautiful mingling of art and nature, which is most agreeable to the eye. We now enter the Beechwood tunnel, and here meet with another fine piece of architecture in the entrance. It is in the Egyptian style, the cumbrous proportions of which seem well fitted for such a pur-

* Between Coventry and Birmingham.

pose, particularly in the manner of their adoption in this design, which is simple and good; though, perhaps, the boldness of the string courses have been a little exaggerated, the lower one having a projection of 2 ft. 9 in. But this entrance is more interesting in another point of view, I mean on account of the introduction of a polychromic effect, produced in what I conceive a more legitimate way than by the use of artificial colour; by the employment of materials of various natural colours; the string courses and copings being of a fine bluish grey stone (I should imagine from the Roade excavation), whilst the mass of the structure is of the red stone found upon the spot. The effect produced is varied and agreeable, and the two colours contrast exceedingly well; the effect, indeed, is such, that I feel convinced that, if this method were pursued upon principles of pure taste, so as to vary the effect of a building without rendering it patchy, and to call in colour judiciously to the aid of form, we should soon come to consider a great building all of one colour as monotonous, and entirely wanting in one of the great elements of pictorial effect. We should, I am confident, soon outgrow the prejudice in favour of stone colour; the prejudice which inspired Simon with the idea of white-washing St. Peter's; of covering all the glittering bronze and gilding, and the rare and glowing marbles of that matchless interior, with "a wash of a warm stone colour," to render the effect, to his view, chaste and perfect. . . .

RAILWAY ARCHITECTURE.

. . . Another single arch of the red stone, springing from the bare rock, and perhaps more beautiful than the last, it is upon the skew principle, which, combined with the same circumstances that gave so much interest to the former one, adds a wildness to its beauty, well in keeping with the rocky scenery with which it is connected. If I were building an ornamental bridge, in a similar situation in a park, I would go out of my way to get a skew, particularly if the picturesque formed part of my object.

The Birmingham terminus is in a bold design in the Ionic order, but depends more upon its magnitude than its composition for admiration, though the effect is certainly imposing. . . .

ARCHITECTURE OF BIRMINGHAM.

. . .With the exception of St. Philip's, a building full of faults the period of Sir Christopher Wren, and one or two modern churches and chapels, Birmingham did not, until the building of the town-hall, possess a single building pretending to anything like architectural character, besides the rather pretty façade of

* See his Italian tour.

the theatre; but the increased appreciation of the fine arts in teh provinces has made great strides during the last ten years. The annual exhibition of works of art has done much, but not so much as the rapidly increasing facilities of communication with the metropolis. However, the taste for the arts is now considerable; and its gratification, far from confining itself to a shilling view of the exhibition, or even a yearly subscription to the Society of Arts, is shown in the annual purchase of many of the best pictures exhibited; for in the sale-book I observed the registry of several hundred pounds thus devoted to the arts. . . .

The Town-hall, though a grand object, with its 130 Corinthian columns of Anglesea marble, is but a poor composition, indeed no composition at all; it is only so many feet of the order, worked up into an oblong square building: the rusticated basement, which is the only original part, is exceedingly bad. In the interior, all is poverty impoverished; the ceiling is laid out in compartments like a Dutch garden, with its roses and pateras stuck here and there with a scantiness truly distressing, though closely filled up by unmeaning and ineffective borderings; whilst the windows are small, and mean in the extreme. . . .

The Free Grammar School, by Barry, is one of his most successful designs in the Gothic style, and is really beautiful, though much injured by the walkingstick meagreness of a row of pinnacles surmounting the buttresses, which do all they can to destroy the repose and beauty of the building: but they cannot, it is beautiful in spite of them; indeed, the entrance is exquisite, conceived in the true and delicate spirit of the finest era.

There is a chapel in Carr's Lane quite a study in picturesque composition, particularly with such a stubborn medium as the Doric order. It is capitally managed; but description without a sketch would be unavailing.

The great architectural feature in Birmingham, however, is of a domestic character. The cottages and villas of the opulent merchants and manufacturers at Edgbaston are more varied in design, more highly finished for their size, and display more finish and fancy in the gardens and out-door arrangements, than any neighbourhood in the vicinity even of the metropolis. The parish of Edgbaston is principally in the estate of Lord Calthorpe, so that he has been able to exclude houses of a common description, and influence the style of the buildings to a great extent; many of the designs of which are exceedingly chaste and beautiful, whilst others display rather too luxuriant a fancy. A public house, the Plough and Harrow, is the most perfect specimen of Elizabethan, upon a small scale, that I have ever seen. But the great beauty of the dwellings of Edgbaston consists in the perfection in which they are kept up. . . .

. . . Little improvement has taken place in the streets of the town; though I must not omit the good effect produced at many points by the tall chimneys of factories, some of which are most beautiful specimens of brickwork, of incredible height and slenderness. A greater impetus will, however, be given to street improvements, by the proposed opening from the railway station to the centre of the best part of the town in High Street, which is finally agreed upon; and nothing but the decision among several plans furnished, delays the immediate commencement of operations. . . .

COLESHILL CHURCH* AND MAXSTOKE CASTLE.

The church, which stands prominently on the top of the hill, and is a conspicuous object for many miles round, has a fine tower and spire, built about the reign of Edward III. The body of the church has undergone so many repairs, that it has lost all architectural interest; but the choir, added about the Tudor period, is very perfect, and offers a good example of the style. This combination, the body of the church in a more severe period, with the choir added in a later and more decorated style, has been adopted by some modern architects with happy effect; particularly by Forster of Liverpool, in his design for St. Matthew's.

Across the churchyard we commenced our stroll towards Maxstoke Castle, announced by the railway guide-book to be still perfect, and still occupied by a lineal descendant of the founder. This, with the account of a machicolated gateway, formed a tempting bill of fare; and we proceeded across the fields at a brisk pace, in anticipation of a rich antiquarian treat. After making our way over the preparatory excavation for the Derby branch railway, we entered the park; and, starting a fine herd of deer from their morning browze, who galloped away at full speed, with antlers couched along their backs, on suddenly turning the corner of a belt of plantation, obtained a view of the building. There it stood, rising from the ancient moat, still filled with water as of old; the towers and embattled walls of that peculiar grey that centuries alone can dye, and which, strongly lighted by the morning sun, showed not a single modern stone to profane the venerable tinges of old Time. Here, in 1838, was a real feudal residence still complete; the park, the style of the country, with a Sherwood Forest look about it, the herd of deer, and the moated fortalice, realised together a picture that carried one back at once to the age of castles and outlaws, and armour and crossbows, and hawking, and a host of other images, which the name of such a period hurries over the region of imagination. I was actually some-

* Coleshill is about eight miles south-east of Birmingham.

what astonished, on recovering from my reverie, to find myself clothed in coat and trowsers of modern Bond Street fabric. On reaching the front of the building, however, the reality fell somewhat short of expectation; and, worst of all, the machicolated gateway was not there. Nevertheless, there was a gateway, and a very fine one, flanked by octagonal towers, with the original shield sculptured at the building of the castle, and still showing its chiseled blazonry as sharply as on the day it was finished, above the pointed arch of the entrance; on the ceiling of which is some fine groining. But here all the original building ended. Crossing the bridge over the moat, we passed beneath the pointed arch, and found, on entering the enclosed court, that nothing remained but the shell; that is to say, the protecting outer wall, with its corner towers and its entrance gateway. The interior, however, of this wall or rampart presented some points of interest; for the ridge or platform beneath the loopholes, where stood the bowmen, is perfect; as well as another less prominent one above, which enabled a few good marksmen to stand and take aim between the battlements. The irregular heap of buildings constituting the residence is comparatively modern, and possesses no interest in the eye of the antiquary. . . .

RAILWAY ENCROACHMENTS.

. . . . Here* is a point at which we are tempted to exclaim against the innovations of railways. Aston Hall, one of the finest Elizabethan seats in the kingdom, is situated on the left, with its noble avenue of elms stretching far away, through the midst of which passes the insolent railway, upon the stilts of its mushroom embankments. Obstructing the view from the Hall, ruthlessly destroying the ancient avenue, and spirting its steam and smoke, and sputtering its sparks into the very windows of the venerable old house. However, if satisfactory compensation has been made to the proprietor, in the tangible form of the circulating medium, others have but little right to complain; for a great public work is surely not to be interrupted by any overstrained respect to the dignity of an ancient manor-house: yet, we cannot but sympathise, for a passing moment, in the desecration of an object that time and association had long rendered locally venerable. In keeping with the invasion of the railway, is the invasion of the present proprietor, lifted by the powers of steam into the seat of aristocratic pride, the pomp and circumstance of which is now by the same steam destroyed. I need scarcely add, that the proprietor bears the great name of Watt. . . .

* Aston two miles north-west of Birmingham, where the Grand Junction Railway passes through Aston Park.

MANLY HALL* AND DRAYTON MANOR.

. . . The first object which attracted my particular attention, and tempted me from my direct path, was a building in a style intended, I presume, to be Tudor Gothic. Taken as a whole, it has a rather good effect from a distance; for the highly decorated tower, and other parts of the building, are, from this point, well backed by dark foliage, against which the white stone of which it is built comes out in strong and striking contrast: but, on a nearer approach, it proves to be full of architectural absurdities, particularly those of combination. It is evidently cottered together from books of Gothic ornaments, with which it is overladen; and, though the details are well executed, the general workmanship good, and ample credit due to the mason, yet the architect, the presiding genius, has been sadly at fault. Like a bad general with good troops, he has not known how to combine his forces, so as to produce a simultaneous and general effect; and victory has consequently been denied to him. The result, in this attempt, is, that the whole fabric comes under the head of structures in "fancy Gothic," which are aptly enough denominated gingerbread.

About five miles farther brought me in view of the picturesque tower of Tamworth, at some distance on the left; and near this point is the entrance to Drayton Manor, the seat of Sir Robert Peel. I was anxious to see the style of residence that a man of Sir Robert Peel's acknowledged taste would create for himself, with the command of unlimited means. A good estimate of a man's character may, I think, be made by a study of his house. Some pretend to judge the disposition of an individual by his associates; some by handwriting; but I would rather say, show me his house. So much of the tone of feeling, of the style and extent of acquirement, may be estimated by the examination of a residence; ostentation or modesty, a love of literature or the fine arts, or the neglect or total absence of all or any of these characteristics, may be traced in the construction and arrangement of a dwelling. However, no such inquisitorial project is mine; and I look upon this building merely as a piece of architecture, and judge of it only as it affects my critical feelings in its relation to the progress of art. I was not disappointed with the effect of the mass, to which (although the first glance was perhaps below my expectation) a closer examination obliged me to concede the possession of a noble simplicity of general conception, and allow that the general effect was decidedly good. It presents no marked peculiarity, either to strike with admiration at first sight, or to encourage criticism upon a closer exa-

* The seat of Mr. Manly, about five miles from Lichfield, and six from Tamworth.

mination; and, if I sought a single term to express my opinion at once, I do not think I could more correctly express my feelings, than by calling it a "gentlemanly" residence. The style, if it can be said to belong to any acknowledged style, is Elizabethan, but pared down to a severity almost Grecian. All the "quips and quiddities," as Falstaff would call them, of the Elizabethan are trimmed away, and an effect is thus produced of which I should find it difficult to cite an example. The Greek, or Roman, or Italian, never harmonises well with the peculiarly rural effect of our park scenery. They have either an exotic or townish air; they seem like a portion of city transplanted into the country. They appear uneasy, like the silk hose and pumps of a courtier in a ploughed field; out of place, like the "fool i' the forest." In short, they do not seem to harmonise with the scenery like the Elizabethan manor-house; which, whether from associations or absolute fitness is difficult to decide, seems to amalgamate with, and form a component part of, the green slope and the tufted wood, and the herd of deer, and all the characteristics of an English park. But to make an accurate copy of an Elizabethan house appears to me a sort of affectation, beneath the genius and originality of the age. Besides which, its quaint carvings and grotesque devices are not in accordance with, or illustrative of, the taste or feeling of the present stage of civilisation; and this fact seems to have been kept in view, either by the architect or his employer, in making the design for the residence of Sir Robert Peel. The main forms, which observation had taught were so well suited to the purpose, have been adopted; whilst the unfit details, which alone have hitherto been the life and soul of most attempts in the Elizabethan style, have been pared away. This is the true method by which to originate a style; take such features and principles of the works of our predecessors as are in accordance with our own wants, and no more. Let fitness govern the form of every great feature, and illustrative appropriateness every decorative detail; and the consequence will be an original style, new in its combination, noble in its outline, and chaste in its decoration. A national style might, as I have often before declared, be formed upon this principle, as original, as pure, and as homogeneous in all its parts, as any style that has preceded it, from Egyptian to Palladian. Such a style, and the demand for originality which it would create, would speedily put an end to a system of paltry plagiarism and imitation; and cause such men alone to become architects whom nature has endowed with capabilities for the exercise of the art; innate feeling of abstract beauty, with genius to combine and adapt the forms prescribed by that feeling to architectural art. An end would then be put to the production of hosts of inanities, by a set of men who are apprenticed to

what ought to be a noble profession, as a mere trade; and who learn to put together out of books certain parts and pieces, much as a child fits together the shapes of a Chinese puzzle.

The process adopted in designing this residence is a step towards the principle I am advocating, but doubtless without the same ultimate view; and, consequently, it possesses some defects which I must point out. In the first place, the rich perforated gallery that crowns the greater part of the building is too rich to harmonise well with the other parts; and it is also of a decidedly Gothic character, of a period anterior to the Elizabethan that forms the basis, as it were, of the composition, which is a still greater objection, involving, as it does, an anachronism very disagreeable to the architectural critic. For instance, suppose an architect designing a building professedly composed of an admixture of the Tudor and Elizabethan styles, it would be contrary to every principle of taste to make the *lower* portion of the edifice Elizabethan, and the *upper* part of the earlier Tudor. It is necessary in designing a building in any declared style or styles, that the chronology should be correct. In the case supposed, had the *lower* portion been of Tudor Gothic, and the *upper* part Elizabethan, no anachronism would annoy the critical eye, and it would present a combination that might actually have occurred, and be in accordance with the true principle of imitation in the fine arts. If, then, in designing in any acknowledged styles, it would be inconsistent to place the earlier above the later style, the same rule applies in the case of the enriched gallery or balustrade in question. The general feeling of the mass is based upon the principles of the Elizabethan style; and, consequently, the placing of a surmounting ornament of a much earlier date than the style upon which the composition of the mass is founded, is a violation of that species of chronology ever to be carefully observed in the art. In another point of view, too, it is bad. Supposing this design to possess claims to nearly total originality of style, the architect may say that he is then absolved from all observation of rules that might apply to any former style, Elizabethan or Gothic, or both, for instance, and that he is at liberty to use what details he pleases: but, on the contrary, the novelty of his style no more entitles him to make it a stock upon which to engraft heterogeneous features, than if it were an acknowledged and settled style; and the engrafting of a well known, perfect, and complete member of one style, upon another style utterly distinct (leaving chronology out of the question), must ever produce a discordant and disagreeable effect. And such, indeed, is the one produced by engrafting this feature of florid Gothic upon this severely simplified Elizabethan, or original modern English, whichever the architect likes best to call it.

The next fault I find is, that, in one division of the building, that which contains the entrance at the back, a solid parapet is substituted for the perforated gallery, and divided into oblong square compartments of a Roman character, quite as much at variance with the general feeling of the design as the Gothic gallery. But, to make it worse, this parapet is surmounted, at a point above the entrance porch, by a great knot of Elizabethan ornaments supporting the arms; and as such things have been so wisely cut down in other parts of the building, their introduction here is an eyesore. My objection is not to the arms or other heraldic emblems judiciously introduced; it is to the unmeaning Elizabethan flourishes by which they are supported. The last defect I shall allude to is the entrance porch, which is in a paltry sort of cockney Gothic, quite at variance with, and infinitely below, the general style of the building; whilst the same feeling in which that is conceived might have produced an entrance porch of very noble character. I need hardly say how much these inconsistencies detract from the homogeneousness of the general effect. The inferior attached offices, of considerable extent, display but little attempt to bring them into a perfect accordance with the main building. They are the usual Elizabethan, of the simplest character, with indented and round-topped gables, with the exception of the two square towers, which partake of the Italian castellated style; but the gallery and cupola of the smaller one are of a mixed sort of English Gothic sufficiently bad. The square towers, however, are more in harmony with the house than other attached buildings; and, seen from a distance above the principal front, have a picturesque effect, particularly if the spectator is at a sufficient distance not to be annoyed by the details.

A considerable space of turf, divided by a few gravelled paths at right angles, is enclosed round the front and sides of the building by a balustrade, surmounted at intervals by marble vases, in a totally distinct style of art from anything connected with the building, and which balustrade is in good taste. The vases do not form a component part of the building; they are perfectly detached works, and acquire a new interest from their distinctive character. They appear as they should do; detached works of art collected in foreign travel, and made to contribute to the embellishment of the family seat, in the most appropriate place that could be found for them. This circumstance may have been the effect of accident rather than calculation; but, if it is accident, it is a lucky one, which, like a fortunate though chance touch of the pencil, often produces the happy effect on a picture which labour and calculation have attempted in vain. They remind me of the apricot tree, which the great artist, Beckford, carefully trained against the side of the principal entrance of Fonthill Abbey, as though some pilgrim monk had brought it home on his return

from Palestine*, and planted it, as a rarity, in the most conspicuous situation. . . .

STATUES IN LICHFIELD.

The good people are busying themselves about the setting up of a statue in the marketplace to their fellow-citizen, Dr. Samuel Johnson, a man, it seems to me, much overrated; for what were the labours of his famous dictionary, upon which his fame principally rests, compared to those of the great Italian who compiled the first Greek Lexicon? and yet his name is unknown, except to the bookworn student. But, I believe, the manes of Johnson might have called in vain upon his fellow-citizens, had not a Mr. Law, chancellor of the diocese, liberally proposed to put up the statue at his own expense. The intentions of Mr. Law were doubtless good and liberal, but his judgment rather questionable, or he would have employed a more efficient sculptor; for it is said that 500*l.* were expended, a sum which might have commanded a much better work. Even a good model cast in iron, and bronzed, would have been preferable to the lump of tortured stone that has been set up. Such a position! such a head! such hands! and, above all, such drapery!—such folds were never seen; the author was evidently quite above consulting nature in the business, and probably exclaimed, with Fuseli, "Damn Nature, she puts me out!" The pedestal is well enough conceived, representing on the four sides four interesting events in the doctor's early life, in basso-rilievo, but it is equally bad in execution. A better sculptor than the one employed, however, might have found some difficulty in imparting anything like dignity to the slouched and shapeless body of the subject; and it occurs to me, that the custom of the Greeks might have been advantageously followed in this instance. They only permitted a "portrait statue" under very extraordinary circumstances; whilst those generally decreed to eminent citizens were formed upon the principles of abstract beauty, and merely identified with the individual by some accessory, or by an attitude representing, like an actor, some leading action of the honoured citizen's life. By this means, a memorial was conferred upon a citizen, at the same time that a beautiful piece of sculpture was made to decorate the city. But to return to the statue of Johnson; with all its faults, it will do good; it will lead to discussion; and it will teach the citizens to think on form and effect; a slight knowledge of which will lead to a love of art, and, gradually, to that appreciation of the beautiful which is the grand test of refinement of mind. They talk of a statue to their fellow-citizen, Garrick, also. I only trust it may not be by the same hand. . . .

NEW CHURCH AT STAFFORD.

A church is in progress at the end of the town, in the Lom-

* The apricot is a native of Syria.

bardic, or what is usually called the Saxon, style. The semicircular arch introduced in this feeling has a good effect in church architecture, and very fine things might be produced by a careful study of the style. I would recommend a young architect intending to pursue it, to see the great original types of the style in the north of Italy, particularly the cathedral of Trent, the interior of which equals the finest cathedrals in the pointed style, in that peculiar religious repose which is their great advantage over temples of almost every other style of architecture; and surpasses them in a noble majesty of effect, of which the pointed style is not capable. . . .

STATUE TO THE LATE DUKE OF SUTHERLAND.

Upon a high and commanding point of moorland, which is a conspicuous object from the windows of Trentham Hall, I had long perceived an object which appeared like a monument, and which, on a nearer approach, I found to be the statue of the late Duke of Sutherland, which (as a countryman declared to me, as I climbed my way up,) people came *thousands* of miles to see. Here is a very different work from the Lichfield statue; it is impressive even when approached from behind, and in front the effect is really grand. It is of noble dimensions, and stately and well poised in attitude; the drapery well disposed, and executed in a simple, but bold, manner, though it does not possess the highest character of which drapery is capable. Chantrey has studied the drapery of Albert Durer, and it is a noble school. The head is very fine, and it is an excellent likeness; such a head was a worthy model for the sculptor; and in this instance a "Portrait statue" excusable. The pedestal is simple, and yet imposing; and is well calculated, by the absence of sharp angles, long to defy the ravages of time. . . .

TRENTHAM HALL.

In the great additions and alterations making under the direction of Mr. Barry to this princely residence, the Italian villa style of the period of Borromino has been adopted; and I could almost have fancied myself standing at an entrance of some portion of the Villa d'Este on the hills of Tivoli, or some of the vast fabrics called villas at Frascati, the Borghesi or Cesarini, or, nearer Rome, the splendid Villa Panfili; though none of these present anything precisely similar, but the general character is closely imitated. This close imitation of a style seems rather retrograding from the high ground I had assigned to the architect of Sir Robert Peel's residence; for the Italian architecture of the period in question might have furnished some general principles well fitted for the formation of a nobler style. However, we must allow the merit due to copying a style *well*, for here it is done well; and to do it well is no easy matter, as may be readily

proved by the mongrel absurdities that we behold every day dignified with the name of Gothic, or Italian, or Grecian. The rich details, in these additions to Trentham, are much better executed than such things in their Italian models, particularly the arms and supporters which are repeated on three sides of the pavilion which forms the new entrance porch, and which is a rich and beautiful design. Indeed it would be far too rich for the rest of the building, if not supported by the rival richness of the great tower, which is rapidly rising at a point that will make it a central object on the approach to this entrance. I have said that I do not think the Italian style at all suited to our park scenery; and certainly, when rising, as it were, from out the green turf, with nothing to modulate the transition but a carriage drive, or at most a single terrace, as is the case with most country seats of importance, the effect would be much as I have described, I think: but this objection is obviated in the present instance, by an appropriate framework, similar to that which surrounds the Italian villas which furnish the style, and forms the greatest feature of their magnificence. A vast esplanade is formed here, decorated by superb fountains, and terminating in a balustraded terrace above the lake, enriched at intervals with marble pavilions; and this arrangement will soften this too city-like architecture into the landscape by degrees; and so counteract the harsh effect otherwise inevitable. . . .

NEW CATHOLIC CHAPEL AT NEWCASTLE UNDER LYME.

In the erection of this chapel, the priest has been his own architect, with the laudable ambition, I suppose, of becoming a modern William de Wykeham. He has, however, committed a few architectural blunders; and I was informed that part of the building had to be taken down more than once. A brickmaker being one of the congregation, and a near neighbour of the priest, recommended bricks as the best material for the building, though the design for the elevation, à la Wykeham, was the florid Gothic. A good deal of contrivance was required to make the bricks answer this end; but by a few moulds for giving one side of a brick the impression of a rosette, a trefoil, or an ogee moulding, with a few other devices according to the forms required, the difficulty was overcome; and more variety has been produced than might at first be thought possible; quite enough to prove that many pleasing effects might be obtained in brickwork, without resorting to composition mouldings and cornices. In this instance, however, the effect is not very happy; for the bricks are burnt black, or partially vitrified, which gives a dark and disagreeable character to the building. In addition to this disadvantage, I should not think Gothic the best style to show varied brickwork to advantage; at all events, such Gothic

as this, which is of that London Guildhall species so distasteful to an amateur. . . .

SINGULARLY DEPRAVED TASTE.

On leaving Newcastle, by the Congleton road, I met with an egregious example of bad taste, exhibited in a pair of expensive entrance gates to a villa. They were carved in imitation of rusticated stonework to *match* the wall. Had it been the intention of the designer to conceal the gates, and make them appear as part of the wall, the device might appear excusable; but to proclaim them gates beyond all doubt, and not part of the wall, a huge set of hinges were so ostentatiously displayed, as to render it evident that he had no end in view beyond producing what I have no doubt he considers a pleasing novelty. . . .

STOCKPORT PUBLIC CEMETERY.

At the entrance to the cemetery is a large board with a list of the various expenses of interment, which, together with the other liberal announcements it contains, must tend greatly to remove the prejudice against cemeteries prevalent among the lower orders, and tend to remove their predilection in favour of the crowded town churchyards. I give the contents of the board, and recommend the adoption of a similar announcement and terms in cemeteries near the metropolis.

" *Public Graves.*

	L.	*s.*	*d.*
" Single interment,	0	8	0
Children, when a bier is not required	0	6	6
Still-born children	0	1	0
Single interment, with name, age, and time of decease engraved on stone	1	0	0

" *Private Graves.*

" Land for a grave	1	10	0
Sinking a grave 9 feet, and fee of interment	0	10	0
Stone for grave, squared and bordered	1	15	6

" Hours of interment: from Nov. 1. to Feb. 28., 3 o'clock in the afternoon; from March 1. to October 31., 4 o'clock in the afternoon.

" Persons interring are at liberty to bring their own minister, and to use their own form of service, or to avail themselves of the services of the chaplain of the cemetery."

STOCKPORT NEW CHURCH AND ARCHITECTURAL FAME.

. . . A steep narrow street, called the Rostron Brow, brought me upon the elevated marketplace, where I was much struck by a particularly fine modern Gothic church, in which part of its predecessor has been preserved. A woman was engaged in cleaning the steps; and, the door being open, I walked in, and was so much pleased with the whole management of the design,

particularly the groined roof, that I was most anxious to ascertain the name of the architect. But this I found not so easy a matter. I asked the question of at least twenty respectable tradesmen in the neighbourhood, but without gaining the information I desired. At length, with better hopes of success from his learning, I addressed myself to the surgeon-apothecary, whose goodnatured face I had descried between the blue bottles in his window. He hurried forward with a medicinal smile, which however vanished when I popped my unexpected question; and he dropped the finger and thumb which had been outstretched to tickle my pulse. He could only inform me that the rebuilding took place about twenty years ago, and that it was unlike the old church. I had imagined it a restoration. Recollecting himself, he produced from a drawer filled with old papers a medal struck upon the occasion of the consecration; but this was but another failure. Here were the names of the dean who read prayers, of the bishop who preached the sermon, and of the churchwardens who, in their best suits, stood with silver-tipped black wands at the front door; but not one word of the architect. Here is consolation for the aspiring student! . . .

THE ARCHITECTURE OF MANCHESTER.

On entering Manchester by the suburb called the London road, it becomes at once evident that you are approaching a manufacturing town of the first rank. It is at a glance observable that it infinitely surpasses Birmingham in the general style and more lofty proportion of the houses, and in its noble ranges of warehouses, which are much more imposing from the superior height, than any buildings of the same description in Birmingham. On entering Market Street, this impression of superiority in the general style of building is strengthened; many houses being five or six stories high, and in some instances a whole range is made to form one architectural design, after the manner of Regent Street, or Regent's Park. It must be confessed, however, that these designs are in few instances very good, though from their loftiness they produced a good general effect; but, if their line were continuous, they would form a street surpassing Regent Street, by the great advantage in importance and effect acquired by their height. The first great public building met with is the Infirmary, on the left as you enter Market Street; which, being of the Ionic order, and displaying some similarity of general plan, may be well pictured to the imagination by the Post Office in St. Martin's le Grand, reduced a little in scale. Only the centre and one wing, however, are at present complete, and the addition of the other does not appear to be contemplated at present, if one may judge from a display of windows on the side of the building it should join. Continuing this line of street, I found a

succession of handsome shops, busy coach offices, and good inns, amongst the best of which seemed the Royal Hotel. Observing a street called the Dean's Gate, I was struck with the name and turned down it, but it was not what I anticipated; I had expected a few antiquities, but discovered nothing except that the houses were much better than the houses of second or third-rate streets of other manufacturing towns. I eventually, however, arrived at a market, a covered market, and one evidently established many years; the butchery, or shamble department, appeared to have been long standing: and so Manchester, it would seem, in the matter of covered markets, which is a mark of advance in a town, preceded most other towns in England. There are several other covered markets here, but none equal to the one at Birmingham. Returning again up Dean's Gate, I found out the Exchange and Post Office, the latter having no pretension to architectural character, and the former presenting nothing to remark upon, although forming a good object enough. Crossing this part of Market Street, I found my way to the old collegiate church, a fine Gothic structure of a fine period. The carving and screenwork in the chancel are wonderfully fine, and so is the ceiling: quite a study. With such a school of art as this, the Gothic architects of Manchester ought to become finished masters of their art, and imbued with its true spirit and feeling, without which, modern attempts at that style are barren and unmeaning. What a fine spirit of art it was that inspired the great carvers of the middle ages; what sharpness of cut, what expression, what finish! And it is easy to see that it is an excellence not merely mechanical; for, on examining a carved border, it will be found that the touch continually varies in the repetition of the same objects, yet not enough to disturb the symmetry, while sufficiently to give individuality to each part; a superiority that the work of the hand, when guided by taste and feeling, must ever possess over casting and moulding: and here the old Gothic architects are invincible; for, even if we could create a school of carvers, the public and the church are both now too poor to pay for their services; at all events, upon such a scale as a William of Wykeham employed them. Beyond the church I found the old college, an interesting building, unrestored and unadulterated by modernisation of any sort. It was founded by one Cheatam, a high-minded merchant like Gresham, who has thus conferred a lasting benefit upon his native town. It contains a good library, which is public in the true sense of the word; that is, any person may go in at any time, and call for any book he requires, unannoyed by any irksome restriction whatever. The principal reading-room is a good spacious old apartment, containing some curious pieces of carved oak furniture of an earlier period than is usually found;

that of the fine screen-carving and tabernacle-work. I could enjoy a few weeks of old-book-poring in this old room amazingly, particularly in the little pavilion, which is a small square apartment out of the main room, over the entrance porch. Here, where the soft light streams in through the stained glass of the traceried windows upon the carving of the table, I could unclasp some antique volume, and pore over the quaint sayings and hoarded wisdom of a former age, for many a day untired. What a retreat is this from the busy turmoil of the cotton metropolis, and yet but few seem to take advantage of it. I must surely come and read here for a month or two some summer, for I am told they have some books which are unique, and many others so scarce as not to be found in any other public library.

Of its modern public buildings, Manchester has much cause to be proud, for they are numerous, and bespeak a lavish munificence highly creditable to the place. In Mosely Street (a short time since the principal street for private residences, which are now transferred to the suburbs,) is a building called the Portico, a literary institution founded some twenty years ago. The entrance is, in fact, a portico of the Ionic order, with plain columns. It was the first architectural effort of the Manchesterians; and, though possessing more than all the poverty of style which distinguishes many of the attempts by inferior architects at that period, was, nevertheless, a great step above the dingy brick and mortar of the surrounding buildings, and soon led to other and better things; and so far possesses an interest, for it marks a period in the advance of civilisation. A little below it is the Institution, a building erected by Mr. Barry, about 10 years since, I believe. I was not pleased with the exterior; the Ionic portico is heavy, and the volutes appear over-large and gouty for want of the fluting in the columns, which the Greek Ionic absolutely requires. However that may be, it is a handsome building of considerable size, and marks an immense step in the advance of the art beyond the stage of its neighbour and predecessor. It contains reading-rooms, a library, a recently established school of design, and a room for the annual exhibition, now open, which I must see at once, for I can never resist an exhibition of pictures. After being somewhat dissatisfied with the exterior, I was most agreeably surprised when I found myself in the great entrance hall. It is magnificent. It is just that happy union of sculpture and architecture where the beauties of both are so mutually assisted and brought out; just that union which I have seen attempted on paper, but never before transferred to stone. It is a picture realised. It is most beautiful. On the pedestals at the top of the wide staircase are the beautiful groups, the Graces of Canova, and the Psyche and Zephyrs of Baily; below, the Gladiators of Canova; and, round the gallery, his Mars and Venus, his Paris,

the Apollo Belvidere, &c.; the whole lighted by small windows near the top, which admit sufficient light to form a beautiful chiaroscuro, but not to vulgarise by glare. In the morning, when the light streams in, and the rays fall brightly on a few of the principal groups, leaving the rest in a beautiful half tint, with the lateral entrances (artistically managed to obtain depth of effect) in dark shade, the effect is enchanting; it is decidedly the most beautiful work I have seen of Mr. Barry's, but it is not half appreciated by the inhabitants. Some hurry up the steps, never looking round; they are come to see the exhibition, not the entrance hall: others, who, if unprejudiced, might stay to admire, hurry past the statuary, the nudities of which they consider shocking; what feeling sensitiveness is this! Some few admire the general effect, but utter indifference is the feeling of the great majority, and by few, indeed, is felt the exceeding beauty of a composition never surpassed in any modern building which I have seen. The exhibition is poor, Etty's well-known picture of the Syrens being the greatest work, which is, at best, a disagreeable specimen of the master. Had I been Ulysses, I feel confident that I could have sailed past without the slightest wish to say Bon jour; unless, indeed, their voices had possessed more captivating charms than their persons. But Etty is a great master; no painter of any modern school has represented flesh like him, particularly in female subjects; there is a fine solid firmness of surface, and yet an indescribable transparency, which shows you that blood is circulating beneath. A beautiful blue tint, the shadow of the meandering veins, seems breathing through, yet never appears upon the surface to chill the warmth of the colour. No painter has ever produced that effect of fair female skin so happily. But I would select some of his smaller pictures, and avoid those with his too wild and luxuriant Bacchantes. Some ten or twelve I could mention, which, in classic purity of conception, as well as magic colouring, are perfect gems. Antique gems breathed into living pictures, like

> —— "Pygmalion's statue waking,
> The mortal and the marble still at strife,
> And timidly expanding into life."

But I must dismiss the exhibition, and continue my search for the public buildings. On the opposite side of the street is the front of the Manchester and Salford Bank, a bold design in the Corinthian order, for which, however, the space was too restricted; and, moreover, the features about the basement are too poor for the columns and pediment above. It is the design of Mr. Tattersal, I believe.

In a street near King Street, I think, is situated the Town Hall, a good composition by Goodwin, of the Ionic order; and here the columns are fluted; the increased beauty, in consequence,

is at once perceived. There are, however, singularities in the design of some ornaments a little in the Percier and Fontaine school, which I scarcely know whether to like or not. The entrance is very good; but the staircase appears to have been narrow and defective, and has been altered and much improved by Mr. Lane, who stands, perhaps, at the head of the profession in Manchester; though his works, particularly in Gothic, have many little disagreeable negligences of style which want correction. The great room above is the original design of Goodwin, and displays much invention and taste; it is a grand apartment, and relieved from much of the ordinary insipidity of public halls by the introduction of painting. The union of painting with architecture is capable of producing as much beauty as sculpture; and beauty of a more appropriate character in this situation. Groups of sculpture are more in their place on the staircase, and in the galleries of approach, whilst the warmth of effect, and the finish obtained by painting, are of the highest advantage in the embellishment of great public apartments. I cannot much admire the execution of the paintings themselves, which, I believe, are by Aglio; but the polychromic effect produced is good, and may serve as a hint for other similar buildings. It cannot be denied that the general effect of the room is very grand, and does great credit to the architect; who, in carrying out his idea, with the experience of the present happy effect, and with a more efficient coadjutor, might have done much to infuse a taste for fresco painting in the interior of public buildings; but I am sorry to hear that he is lost to the profession and the art by a premature death.

To return upon our steps; behind the Institution is the Athenæum*, now building and nearly complete. The competition which took place for this building is a sad *exposé* of the unfair system upon which pretended open competitions are carried on. The committee had previously decided among themselves who should have "the job," but were placed in an unexpected difficulty, by the striking superiority of a design sent in by Mr. Atkinson, which two or three of the committee had the honesty to admit at once. This created a schism, to put an end to which, a compromise was agreed to, by which *all* the designs were rejected. Soon after this event, Mr. Barry was in the town, to look over some works which he has in progress there. He sketched out roughly, during a conversation on the subject, an outline of his own idea of such a building; and this sketch was immediately seized and carried to the committee. They were in a difficulty, and, to extricate themselves, adopted it at once. No blame whatever can attach to Mr. Barry for the unfairness of the committee; and, for once, unfairness has produced a happy

* An open literary club.

result; for I believe it is generally acknowledged, that the present building is superior to any of the former designs. It is just one of the Pall Mall club-houses transplanted to Manchester, and the fine square general mass will tend to improve and simplify provincial taste; but, in detail, it is not the most happy of Mr. Barry's works in what may be called that Greco-Italian style which is, I think, his fort. The cornice is overdone, whilst the principal entrance is too poor; the three-quarter attached columns have a mean effect in juxtaposition with such strong projections, as other parts of the building, particularly the cornice, display; the great space, too, above the windows, necessary, I believe, for rooms above (a theatre, or something of the sort), is not happily managed. There is a smaller side entrance, very superior to the front one. In churches, nothing but Gothic seems to be doing. The finest, taking it altogether, is one by Goodwin, built nine or ten years ago, the effect of which is, however, much injured by irregular colour of the stone. One by Barry, completed about the same period, I believe, is very inferior, with the exception of the elegant steeple. The body of the building, and the tower up to the commencement of the steeple, are quite deficient in the true feeling of the style, and full of inadmissible adaptations. He has made much progress in the Gothic, since this period. A new chapel in the same style, which he has now in progress, promises better, but it has many faults; the base and surbase mouldings are much exaggerated, and, in consequence, appear quite a caricature of Gothic mouldings, which are so chaste and beautiful. The simple alternation of buttresses and small windows all along the side displays great poverty of design; and the front, though pretty, contains also some inadmissible details. Mr. Atkinson has far surpassed it in the church he is building at Cheatam Hill, which is conceived in the true Gothic spirit, and full of careful study in the detail. He is one of the most finished Gothic architects of the day. But none have mastered the true spirit of that intricate and beautiful architecture, which produced our wonderful cathedrals, so completely as Welby Pugin; and yet we do not see him engaged in any public work. Perhaps his strong Catholic feeling causes a prejudice against him; if so, the Catholics themselves ought stand by him, and it seems that in Manchester, where they form a strong and numerous body, they are determined to do so. They talk of building a cathedral, and leaving it to Pugin to make as splendid a work as he chooses, regardless of expense. It is said, they even go so far as to call it a dispensation of Providence in their favour, that such an architect has sprung up among them, capable of creating for them fanes as splendid and impressive as those which they raised in their palmy days, but which the reformation wrested from them for ever. I hope, at all events, that the pro-

ject of a Catholic cathedral at Manchester may be carried into effect, for I do not think that the finest architectural combination in the world will make any more Protestant apostates than would fall off in the usual course of events; and I feel, at the same time, sure that such a building would be produced as would give a new direction to the studies of architects practising the Gothic style.

The next architectural feature that interested me was, the suburban villas of the merchants and manufacturers; and of them, I was told, I should find the best specimens along the Oxford road. Here, however, I was somewhat disappointed, for none of them equalled the neatness and finish of those of the Birmingham traders at Edgbaston; and very few indeed put forth any claim to architectural character of any sort. There were a few exceptions, however. One, in the simplest Greco-Italian, was very graceful and simple.

The next thing that struck me was the Victoria Park, entered between two Grecian Doric lodges of poor design. This is a tract of land, purchased by a company for the purpose of building a number of villas, all so arranged as to minister to the general beauty of the park. The design of each individual villa will be left to the choice of the person taking the land, only binding him to a certain rank of house to face in a certain direction. This will, no doubt, eventually form a very beautiful spot. The villa which struck me most (there are yet but few complete) was that of Mr. Lane, the architect, which possesses many beauties. The raised terrace, the graceful carving of the barge-board, and the lightness of the attached conservatory, are all pretty objects; but to the eye of one a little versed in the Gothic, it is spoiled by inaccuracies of detail. The window-sills are square, instead of being splayed, and supported by square blocks underneath, of a Roman character. This jumble of styles is very disagreeable; and then there is a poverty, too, in the design of the windows, which require stone jambs, but which are left with only finniken wooden framework. However, the general effect of the design is exceedingly pretty; and to a lady's eye, not over-practised in architecture, must appear one of the most charming little cottage-ornées possible to conceive. Farther along the road, I met with a pair of lodges, the entrance to another park upon the plan of the Victoria; the entrance to which is very pretty, with willows, and water, and swans, and all that sort of thing. However, the company, it appears, did not think the speculation a good one, and sold it; so that it is now in the possession of a private individual. The entrance lodges are extremely pretty, in the Italian style, the design of Mr. Atkinson, whom I before mentioned. Some little distance farther, is a villa in the Old English style, also by this architect. It is of brick, with stone porch and

window facings, and is a very simple and bold design. The chimneys particularly pleased me: they are entirely of brick, but rendered ornamental and characteristic by the style of the work, which admits of great variety of form. They are, however, not overdone in this respect, and are quite reviving after the over-ornamented compost things one is in the habit of seeing introduced in this style, overpowering, by their heavy cumbrous ornament, every other decorative feature of the building.

Finding myself now three miles from Manchester, I returned upon my steps, reflecting upon the industry and wealth that had produced this three miles of building, principally dedicated to the habitations of wealthy individuals.

This, however, is only one suburb; and, though, perhaps, the principal one for superior residences, there is also the London Road, and Cheatam, and others, which must be taken into account in considering the resources of Manchester; and also those residences upon a more extensive scale, which are at a greater distance, and take the lead in the developement of the principles of refinement and high civilisation. Such are the seats of Mr. Clowes at Broughton Hall, Mr. Bow at Broughton, and Mr. Travers at Travers Park. Here all is in the highest style of keeping; the gardens present the newest and most recently introduced flowers, cultivated in the highest perfection; fruit too is grown in the greatest perfection by every assistance art can afford; and conservatories and hot-houses enclose the most beautiful foliage of temperate and tropical regions, flourishing in all their native luxuriance; and collections of orchidaceous plants, now so interesting to the botanist, are also making at many of these residences, under the direction of experienced gardeners. With such examples of refinement, the progress of general civilisation must become rapid and more rapid.

My next point was the Botanic Gardens, to which a stranger can only be introduced by one of the hereditary members, and the public of Manchester generally are also excluded; none but subscribers being admitted. This exclusive system must be injurious to establishments of this nature, and is not in accordance with the spirit of the times. The gardens, however, thrive; and though some improvements have been abandoned for want of sufficient capital, yet funds for general purposes are not wanting. The conservatories, &c., are nearly 300 ft. in length, and there are 300 or 400 feet of glass in other parts of the gardens; peach-houses, graperies, pine-houses, &c. The entrance is a bold architectural composition in the Ionic order; which, however, though handsome from its scale and pretension, possesses no peculiar excellence of invention or design. On entering the garden, the foreground displays itself well in lawn and shrubbery; which, considering that it has only been planted 8 years, shows a hand-

some growth, and in the height of summer must already be very beautiful. In the lower part of the garden is a piece of water, with some fancy bridges, a prettily laid out flower-garden, and, above all, a rocky walk, the best-managed thing of the sort I have seen. The stones were brought from a distance of forty miles, and are so well disposed, that, with the assistance of the ivy and other creeping plants which have partially covered them, they form a romantic rocky valley, very like wild nature itself. Here is also a stream, managed on one side, but they have not been able to get slope enough to give the current sufficient activity to make it attractive. Attached to the establishment is a large walled kitchen-garden, which contains also the pineries, graperies, peach-house, &c., of which I have spoken, from which vegetables and fruits of the finest quality are furnished to the members and shareholders. Leaving the garden, I passed the Asylum for the Deaf and Dumb, with the attached chapel, a handsome range of Gothic building by Mr. Lane, though possessing the usual defects of his designs. . . .

London, Dec. 5. 1838.

ART. X. *Report as to the Safety and Efficiency of Joyce's Patent Heating Apparatus.* By J. T. COOPER, Esq., Consulting Chemist to the Polytechnic Institution, Lecturer on Chemistry and Medical Jurisprudence, &c.; and WILLIAM THOMAS BRANDE, Esq., F.R.S., Professor of Chemistry in the Royal Institution. In a Letter to Mr. Harper, the Proprietor of the Patent.

IN compliance with your letter addressed to me on the 10th March last, I have undertaken an investigation of Joyce's Heating Apparatus, in relation to its heating powers, the quantity of fuel consumed in a given time to produce in an appropriate room a certain increase of heat, also the amount of contamination the air of the room sustains in a certain time, as likewise the deterioration of the air by the combustion of oil, tallow, spermaceti, stearine, and gas, with the view of estimating the comparative injurious effects of Joyce's stoves, and of other methods, by which heat as well as light are produced, and also of the amount of contamination the air undergoes, in places where a number of individuals are congregated, and in which no injurious effects are found to occur.

In the outset, I may state that the room in which the experiments have been conducted is nearly 14 ft. long, 13 ft. wide, and 12 ft. high, and consequently contains about 2000 cubic feet. It has a chimney, and a peculiarly accurately fitted and well constructed register stove, which, when shut, effectually closes its lower aperture. Whenever a particular trial was to be made, bags of sand were placed on the junctions of the window sashes, and also at the bottom of the doors, and every precaution taken to make it as air-tight as could be.

I find that one of Joyce's stoves, the internal cylinder of which is 6 in. in diameter and 15 in. high, with an inverted cone, having twelve holes, each a quarter of an inch in diameter, burns three ounces of the prepared fuel per hour, when the regulating apertures at the top are quite open; in one instance, with a particular kind of fuel (such as is not commonly sold), it burnt three ounces and four tenths; but, taking the average of a great number of trials

carried on for days, its rate of burning is a fraction less than three ounces per hour; but in all cases the combustion proceeds without producing any of the unpleasant odour that occurs when charcoal of the ordinary kind is burnt in a similar manner.

In one instance, the stove was kindled, and at eleven o'clock in the evening was placed in the above-named room, the temperature of which was 62° Fahr.; the room was then closed, and not entered till ten o'clock the following morning. I then remained in the room about an hour, the doors and windows being kept closed, and found that exactly thirty-six ounces avoirdupois of the fuel had been consumed; and on testing the air taken from the upper, lower, and middle parts of the room, the greatest quantity of carbonic acid contained was three quarters per cent. The temperature had increased to 72½° Fahr.

In another experiment, the stove was allowed to burn fifteen hours in the closed apartment, and at the end of that time it had consumed forty-four ounces and a half of fuel; and the air of the room, on being tested for carbonic acid, as before, was found to contain less than one per cent, and the temperature had increased thirteen degrees.

These experiments have been made repeatedly, and always with the same results, excepting some slight differences in the increase of heat.

It can be demonstrated as follows, that each ounce of pure charcoal, when burnt, will produce little less than two cubic feet of carbonic acid: for, 100 cubical inches of carbonic acid is estimated to weigh 47 grains, and every 22 grains of carbonic acid is known to contain 6 grains of carbon; then as 22 is to 6, so is 47 to 12·82, which is the weight of the carbon contained in 100 cubical inches of carbonic acid; then if 100 cubical inches of carbonic acid contain 12·82 of carbon, 1728 cubical inches, or 1 cubic foot, will contain 221·53 grains of carbon: again, if 221·53 grains of carbon be contained in 1 cubic foot of carbonic acid, 1 ounce avoirdupoise, or 437·5 grains, will be contained in 1·97 cubic feet, which is so nearly 2 cubic feet, that, for my present purpose, it may be said that 1 ounce of pure charcoal will produce 2 cubic feet of carbonic acid.

If no change in the air of the apartment had occurred in the two cases before related, there should have been present in the first instance 72, and in the latter 89, cubic feet of carbonic acid, which would have made the percentage 3·6, and 4·45; whereas, in both cases, it was less than one per cent, thereby showing, that whatever care may be bestowed to render a room air-tight, it is not possible to accomplish it so completely as to prevent the escape of the warm air, through minute pores and crevices from the upper parts of the room, and the entrance of the cooler air at the bottom; for in no other way am I able to account for the difference observed in the quantity of carbonic acid produced, and that detected in the air of the room.

An imperial pint of good sperm oil will burn, in a well trimmed Argand's lamp of the ordinary size, about twelve hours; but I find by my analysis, that a pint of such oil contains 6333 grains of carbon, or nearly 14·5 ounces avoirdupois, making the quantity of carbon consumed in one hour a trifle more than 1·2 ounces; which, as I have shown above, is equivalent to the production of 2·4 cubic feet of carbonic acid. It will follow from this, that two such table lamps, burning together, will produce nearly as much carbonic acid in the same time as one of Joyce's stoves, such as I have used in my experiments, and which I have before stated to be adapted for warming an apartment containing about 2000 cubic feet of air.

A moulded tallow candle (long four) burns, on the average of some hours, 122 grains of tallow per hour; but in 122 grains of tallow there are about 95 grains of carbon; consequently, about fourteen such candles, burning together, would produce as much carbonic acid in the same time as the Joyce's stove to which I have before alluded.

A spermaceti candle of the same size will burn in one hour 129 grains of spermaceti; but in 129 grains of spermaceti there are about 100 grains of car-

bon; consequently, about thirteen such candles, burning together, will produce in the same time as much carbonic acid as the Joyce's stove.

A stearine candle of the same size will burn in an hour 156 grains of that substance; but in 156 grains of stearine, there are about 121 grains of carbon; consequently, eleven of such candles, burning together, will produce as much carbonic acid in the same time as the Joyce's stove.

Another stearine candle from a different maker, with a larger wick but of the same weight (long four), will burn 175 grains in an hour; but in 175 grains of stearine there are about 136 grains of carbon; consequently, between nine and ten of such candles, burning together, will produce as much carbonic acid in the same time as the Joyce's stove.

Coal gas of average quality I have found to produce, by burning, 0·6 of its bulk of carbonic acid; an ordinary coal-gas burner on the Argand's principle, having fifteen holes, will consume 5 cubic feet of gas per hour; six tenths of five are three, therefore, 3 cubic feet of carbonic acid would result from one such light; consequently, two such gas lights, burning together, will produce exactly the same quantity of carbonic acid as the Joyce's stove.

But, independently of the formation of carbonic acid, all the common combustibles last named contain such excess of hydrogen as tends to the further deterioration of the air, by the abstraction of an additional portion of its oxygen, so as to leave an excess of residuary nitrogen, which, of itself, is nearly as deleterious as carbonic acid; the air, therefore, which issues from the glasses of Argand, oil, or gas lamps, or from the flames of candles, will, if received into a proper vessel, by which the entire products of combustion may be collected, prove equally, if not more, deleterious to animal life, than that which results from the combustion of an equivalent quantity of charcoal.

With a view to determine the amount of deterioration the air underwent in crowded assemblies, I obtained some air from a chapel in my neighbourhood, towards the close of the evening service, and, on examination in the ordinary way, it was found to contain a little more than one and a half per cent of carbonic acid. In another instance, I collected some air from the gallery of a crowded theatre, at eleven o'clock in the evening, about four hours after the commencement of the performances, and this I have found to contain about three per cent of carbonic acid.

The advantage which I conceive Joyce's stove to possess over the ordinary methods of burning charcoal for warming apartments, is the perfect control over the rate of combustion of the fuel; for while, in a common chafingdish or brasier, almost an unlimited quantity of charcoal may be consumed in a comparatively short space of time, and liberate very suddenly a large volume of carbonic acid, which might be prejudicial to health, if not absolutely dangerous; in these stoves, by their peculiar construction and arrangement of proper-sized apertures, the fuel can be consumed only at a certain given rate; and if they be properly adjusted to the size of the apartment they are intended to heat, my experience leads me to believe that no injurious consequences can arise from their employment.

JOHN T. COOPER.

82. Blackfriars Road, London, 14th June, 1838.

HAVING been present at the experiments made at Mr. Cooper's house, with a view of determining the degree of deterioration which the air suffers by the employment of Joyce's stoves in close rooms, and having examined, in conjunction with him, the composition of the atmosphere under such circumstances, I can certify that, after burning for twelve hours in a close room of the dimensions above stated, less than one per cent of carbonic acid was, in all cases, found in the air of the room; that such proportion of carbonic acid cannot be considered as deleterious, or in the least degree dangerous, in reference to respiration; that it falls short of the relative quantity of carbonic acid found in crowded and illuminated rooms, or in buildings in which many persons are congregated, such as churches, theatres, and assembly rooms, in

which ventilation is generally imperfect, and in which, as far as my experience goes, the relative proportion of carbonic acid always considerably exceeds one per cent. I am, therefore, of opinion that the said stoves, which are so constructed as to consume only a limited quantity of pure charcoal in a given time, may be employed with perfect security, for all the purposes for which they have been proposed; and I consider the grounds of this opinion sufficiently detailed by the experiments above given.

London, 14th June, 1838. W. T. Brande.

To Mr. William Harper, 58. King William Street, London Bridge.

Art. XI. *Notice of certain Experiments made with a View to determine the relative Expansion of Iron and Masonry.* By Thos. U. Walter, Architect of Girard College, Philadelphia. Extracted from Mr. Walter's "Fifth Annual Report to the Building Committee of Girard College."

The expansible properties of iron having been a subject of considerable conjecture in reference to the bands for resisting the lateral pressure of the arches, I was induced to make an experiment for the purpose of discovering the actual difference of temperature produced in the middle of the walls, by the extreme heat of summer and the severest cold of winter.

Although I have never had an idea that any evil could possibly result from the expansion of the iron in question, by an increase of temperature, the materials which surround it being subject to an expansion almost (if not quite) equal to that of the iron, yet the satisfaction to be derived from positive evidence on the subject is sufficient to give interest to the experiment; I shall therefore give a brief account of the manner in which it was conducted, so as to enable you to judge how far the result may be relied on.

The place selected for the experiment was the brick wall between the south vestibule and the large rooms; the thickness of this wall is 5 ft. 5 in., and its distance from the south front of the cell 26 ft.; the sun had therefore full power upon it during the summer, and in the winter the whole building was covered with a temporary roof: I should also remark that the experiment was completed before any fires were made in the furnaces.

On the 23d of September, 1836, the temperature on the work being at 82° Fahrenheit, a self-registering *minimum* thermometer was placed upon the iron band in the middle of the wall, and the brickwork constructed as solidly around it as the rest of the building.

On the 29th of July, 1837, the temperature being again at 82°, a hole was made in the wall, and the thermometer taken out, when it was found that the register had descended to 42° during the intermediate winter, the extreme cold of which was 3° below zero: thus we find the greatest cold in the middle of the walls to be 42°.

On the 16th of January, 1837, the temperature on the building being 24° Fahrenheit, a self-registering *maximum* thermometer was placed on the iron band in the middle of the aforementioned wall, on the same horizontal line with the other thermometer, and about 60 ft. distant from it, a space having been left in the wall when it was built, for the purpose; which space was walled up around the thermometer as firm and compact as the rest of the work.

On the 16th inst., the temperature on the building being again at 24°, the walling was taken out, when it was found that the register in the thermometer had gone up to 61° during the intermediate summer, the greatest heat of which was 94°.

We have therefore 42° for the lowest temperature of the iron bars, and 61° for the highest, making a difference of 19°.

The expansion that an increase of temperature of 180° produces upon malleable iron, is given by Dr. Ure, in his *Dictionary of Chemistry* (p. 272.), as follows:

From experiments by Smeaton $\frac{1}{1\,0\,8}$ of its length; according to Borda's experiments $\frac{1}{8\,0\,3}$ of its length; and according to Dulong and Petit $\frac{1}{8\,4\,6}$ of its length.

Mr. Hassler (of New Jersey), in his "Account of Pyrometric Experiments," read before the American Philosophical Society, June 29th, 1817 (*Trans. Amer. Phil. Soc.*, n. s., vol. i. p. 227.), finds the expansion to be equal to $\frac{1}{1\,0\,8}$ of its length; and in a work on Natural Philosophy, by Biot (*Phys. de Biot*, 1.), we have the experiments of Lavoisier and Laplace, made in 1782, giving an expansion, under the same increase of temperature, equal to $\frac{1}{8\,1\,7}$ of its length.

The trifling difference in these results may be attributed to a difference in the density of the material.

Now, if 180° will increase a bar $\frac{1}{1\,0\,8}$ of its length (this being the greatest expansion obtained by the foregoing experiments), 19° will lengthen it only $\frac{1}{7\,8\,2\,6}$; hence the bands around the rooms of the College (each being 54 feet long from the points of support) will be subjected to a difference in their length between the extreme heat of summer and the severest cold of winter, of $\frac{1}{7\,8\,2\,6}$ or $\frac{1}{1\,7}$ of an inch.

This being the actual difference produced in the length of the iron bands, by the greatest change of temperature to which they can be subjected, it remains for us to consider the expansibility of the materials with which they are surrounded.

A table on the expansion of different kinds of stone, &c., from an increase of temperature, is given by Mr. Alexander J. Adie, civil engineer, in a paper read before the Royal Society of Edinburgh, on the 20th of April, 1835 (*Jour. Frank. Inst.*, vol. xx. p. 200.), in which he makes the expansion produced upon bricks by 180° of Fahrenheit equal to $\frac{1}{1\,0\,1\,5}$ of its length, or $\frac{1}{1\,0}$ of an inch in 54 ft. under an increase of temperature of 19°.

If, therefore, the maximum expansion of one of the iron bands in the walls of the College is $\frac{1}{1\,7}$ of an inch, and the brickwork surrounding it $\frac{1}{1\,0}$, the difference is then reduced to nearly $\frac{1}{2\,3}$ of an inch: but if we consider that the variation of temperature in the interior of the wall is only 19°, while the exterior is subjected to the extremes of heat and cold, it will be obvious that the aggregate expansion and contraction of the brickwork is even greater than that of the iron.

From these considerations, it is evident that not the slightest injury can possibly result from the use of iron in the construction of the College.

Girard College, Philadelphia, Dec. 30. 1837.

MISCELLANEOUS INTELLIGENCE.

Art. I. *Retrospective Criticism.*

Parsey's Convergence of Perpendiculars, &c. (p. 528.)—Permit me to reply to the enquiries which Kata Phusin has put to me in your last Number, and to answer his objections. And first, as to the full signification of the pronoun "we." It was not intended as an "editorial assumption," or to be extended to the "whole race of mankind," but to comprise that number of individuals of whose opinions and practice I had some knowledge. But in that number I certainly did include Kata Phusin, and for the following reason. Mr. Pocock had admitted the convergence of both perpendicular and horizontal lines, but denied that it ought to be represented; he also asserted that, if Parsey's system were adopted, we should be under the "particular inconvenience," in viewing a picture, of holding our eye steadfastly and steadily in one precise

position, or else all the parts would be out of drawing; implying thereby that the system which Mr. Parsey wished to be superseded was free from that "inconvenience." Now, as Kata Phusin agreed in what Mr. Pocock admitted, I concluded that he agreed also in what Mr. Pocock asserted, seeing that he never, until now, ventured to contradict it; and my conclusion was the more reasonable, from the fact of my own experience, as far as it had extended, having convinced me that both artists, and the general public, not only did not practise the condition of which the "inconvenience" above mentioned is the result, but that they were not aware of it. Thus I answer Kata Phusin's second enquiry as to my want of charity towards himself; as regards the general public, I must plead my ignorance.

However, as Kata Phusin admits that there is but one place to stand in to view a picture, and, of course, that in any other place the picture will not convey a correct impression; and as he asserts that the intentions of the artists of the present day are, invariably, that their pictures should be viewed from a given point, and at a given distance; and further, that the practice, not only of connoisseurs, but of the general public, of all time, *is, has been, and must be*, to view every picture under such a condition; I will show that the adoption of such a condition in practice is not in accordance with the practice of the artist; and, moreover, that the difficulties or absurdities which would result from it are greater than those which would result from the approximation system.

The aim of the artist is to represent on a plane surface any object that he may be viewing, so that the representation may convey to the mind of another ideas vividly resembling those which the object created in him. Perspective is the art of doing this by mathematical rules. But the artist, he who is essentially such, who trusts to his own power of perceiving forms and their relative proportions, and of representing them with his pencil, is not dependent on the surface upon which he is drawing being held at one precise point and distance from the eye, in order to insure the entire truth of the forms he has delineated. At any distance, whether it is one foot or one yard, whether he looks up or looks down upon the surface, the truth of his representation is preserved. But, with the mathematical artist, the case is different, if he works by the rules of perspective which Kata Phusin defends. He then, as Kata Phusin admits, requires the spectator to determine upon one precise point of distance from his picture, before the truth of the representation will be evident; and then, when the spectator has determined this point, if he makes the slightest deviation from it, be it "but in the estimation of a hair," the whole work "is out of joint."

Let an artist sketch from nature the object C O P D, in figure 162. p. 428. Let the object represent a square column, 70 ft. in height, 10 ft. in breadth, and the distance of the artist from it 80 ft. Let the portion from s to the top, be divided into equal portions of 10 ft. each. Now, I am convinced that, if the artist be governed by his unsophisticated perception of form, he would represent every increasing portion of altitude, by a diminishing length, corresponding to the ratio on s *x*; without requiring, as Kata Phusin asserts it is the invariable practice of *all artists* to require, as a necessary condition to the truth of the delineation, that the surface be viewed from one precise point, and one precise distance only.

But, let a mathematical artist attempt to delineate this object by line and rule. He will set off the portions from s to the top of the column, of equal length, and make the length as s x. But on being told that, standing in the position which he did, the upper portion, in nature, appears considerably smaller than the lowest portion, in the words of Kata Phusin he will reply: "Ay, and the upper portion of my picture of the object will appear smaller, when you stand in the right place, for it is "necessary and natural for every one to put himself in the right place, and every one does do so." Now, s A is the actual length of the column, and s *x* the portion of the retina affected; therefore, the proper distance to view the figure 162. (in order that s x may

produce the appearance s x on the retina) is the distance v s, about 2 in. But, as 2 in. distance from the point s to the centre of visible direction is the right place to view s x, that is, with the eye about 1½ in. from the paper, I will just ask Kata Phusin, if it is natural; that is to say, Has every one viewed the figure thus, or would every one view it thus? Kata Phusin is not absurd in saying that this is necessary, but he is excessively absurd in saying that this is the language or the practice of the artist, or the general public. But, as this illustration may be objected to, let us take one of Le Keux's architectural gems, about 4 in. in length. Now, according to Kata Phusin's mode of finding the right place to stand in, the distance should be the length of the altitude of an equilateral triangle, the base of which must be equal to the greatest length of the picture. This altitude will be about 3 in.; therefore, the right place for the picture to be viewed will be about 3 in. from the centre of the eyeball. Can any thing be more unnatural or absurd?

Kata Phusin says that "the great bone of contention, with the sticklers for represented convergence, is, that the perpendiculars in the picture do not subtend the same angle as the natural lines which they represent." This is false, for I have admitted the fact, although I have no positive perception of it. But what are the circumstances attending the admission of that fact? Why, that there is only one precise mathematical point from which a picture can be viewed, to have a correct impression from it; and that to discover this point requires such an exquisite perception of form, that, if to any being there were such

"finer optics given,"

he would be fit only

"T' inspect a mite, not comprehend the heaven."

I will conclude by observing that I cannot make out the force of the following objection. "If the right place to view a picture be 10 ft., every concession to the spectator who shall stand 15 ft., will be a double infliction on those who stand 5 ft. from it." But, whatever, may be the absurdity of the infliction implied, it cannot be greater than the following deduction from Kata Phusin's principle. All pictures hung with the horizontal vanishing line above the height of the eye, Kata Phusin admits, convey an erroneous impression of local truth. If, then, Kata Phusin hang a picture to meet the eye of a person 6 ft. high, he will inflict error on a person 5 ft. high. This is a greater difficulty than any in the approximation system. Admit it, then, to be a choice of difficulties. Is it then preferable to have a picture which will only convey local truth when viewed from one precise point; or, is it preferable to have one, which, in any position, shall give a more vivid resemblance than the other does when out of that position, or, perhaps, than when it is viewed from its proper position?—*Chappell Smith. Nov.* 6. 1838.

The present Number of the *Architectural Magazine* being the last, in order, if possible, to close the controversy between Mr. Smith and Kata Phusin, we sent the letter of Mr. Smith to Kata Phusin, from whom we received the following reply:—

Mr. Chappell Smith on Parsey's Convergence of Perpendiculars, &c.—In answer to Mr. C. Smith's observations, I may remark, first, that I never noticed the implied position of Mr. Pocock, or I should have disputed it long ago. The objection based on the minute size of engravings, even were it valid, would only prove that, in designs of such dimensions, certain allowances were to be made in fixing the vanishing points for our habits of contemplation, but it is *not* valid, and I intended the sentence at page 528., referring to vignettes, to anticipate it. Mr. Chappell Smith *must* have observed that, when an engraving less than 6 in. in the greatest diameter is terminated by decided edges, it has a strange, cutting, and harsh effect on the eye, which is totally unfelt as soon as we come to engravings more than 6 in. in diameter. He must also have observed that, in most small engravings, this disadvantage is obviated by losing the edge altogether, and turning them into the light and

lovely shapelessness of the vignette. This is done entirely to indicate to the eye that it is not a picture, but part of one, which it contemplates, and, therefore, that it is to choose a much greater distance of position than in the ordinary case. All the small engravings from J. M. W. Turner, are executed from water-colour drawings of the *same size*, and on this principle.* Le Keux's gems I do not know, but I am perfectly certain that (4 in. being their greatest dimension) they cut the eye if they are terminated by right lines, for this general reason, that the right line termination of the picture is always representative of the natural limit of the cone of rays proceeding to the eyeball, and encloses exactly so much of the scene as would be naturally visible without turning the eye: now the eye always receives rays converging at 60°; therefore, unless the sides of the picture subtend the same angle, the terminations will hurt the eye, will cut distinctly upon the retina; and, therefore, no picture ought to be seen at a greater distance than that of the point where it subtends this angle.

With regard to engravings of 6 or 7 inches in diameter, if they are well executed, they cannot be seen farther off than 8 in., and the artist always makes an allowance for this slight excess of distance. With larger pictures, the fact of the correct distance being the natural one may be verified every day by observation.

The distinction which Mr. Smith institutes between the "artist" and mathematical artist is wholly ungrounded. No artist can design any drawing, except under the supposition of a fixed point for the spectator's eye. A perspective drawing, made on such a principle, will not hurt the eye, even when out of its proper place; but a drawing made on the supposition of the eye being any where will hurt it every where.

I am glad that Mr. Smith has admitted, even for the sake of argument, that the perpendiculars in the picture subtend the same angle, &c., for, if he once convince himself clearly of this fact, every difficulty will vanish on a little consideration.

As for the 5 ft. and 6 ft. objection, I have yet to learn that Mr. Parsey's system will enable the spectator to place his eye at any *height* he pleases. Mr. Parsey supposes a fixed horizontal, as well as in the old system; and the elevation of different persons must, of course, always affect their idea of the picture in his system, as well as in the old one. This "greater difficulty than any in the approximation system" exists in the approximation system itself. Finally, Mr. Chappell Smith assumes, in concluding, that an approximation *can* be obtained, which I distinctly deny. Mr. Parsey's system differs from the old one, not in allowing the eye to be in any place, but in putting it into the wrong place. For his system, as well as all systems, *must* suppose a fixed spectator; and when the spectator happens to be in the right place, or in any wrong place except the particular wrong place to which he has been appointed, it subjects him to the perception of error so flagrant and so striking, that I close the present discussion in most perfect confidence that Mr. Parsey's Principles will in a short time require no contradiction or dispute, but will have received their tacit condemnation in the steady refusal of artists to admit their truth, and of the public to tolerate their practice. — *Kata Phusin. Oxford, Nov.* 12. 1838.

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* See Rogers's Italy and Poems.

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THE END.

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